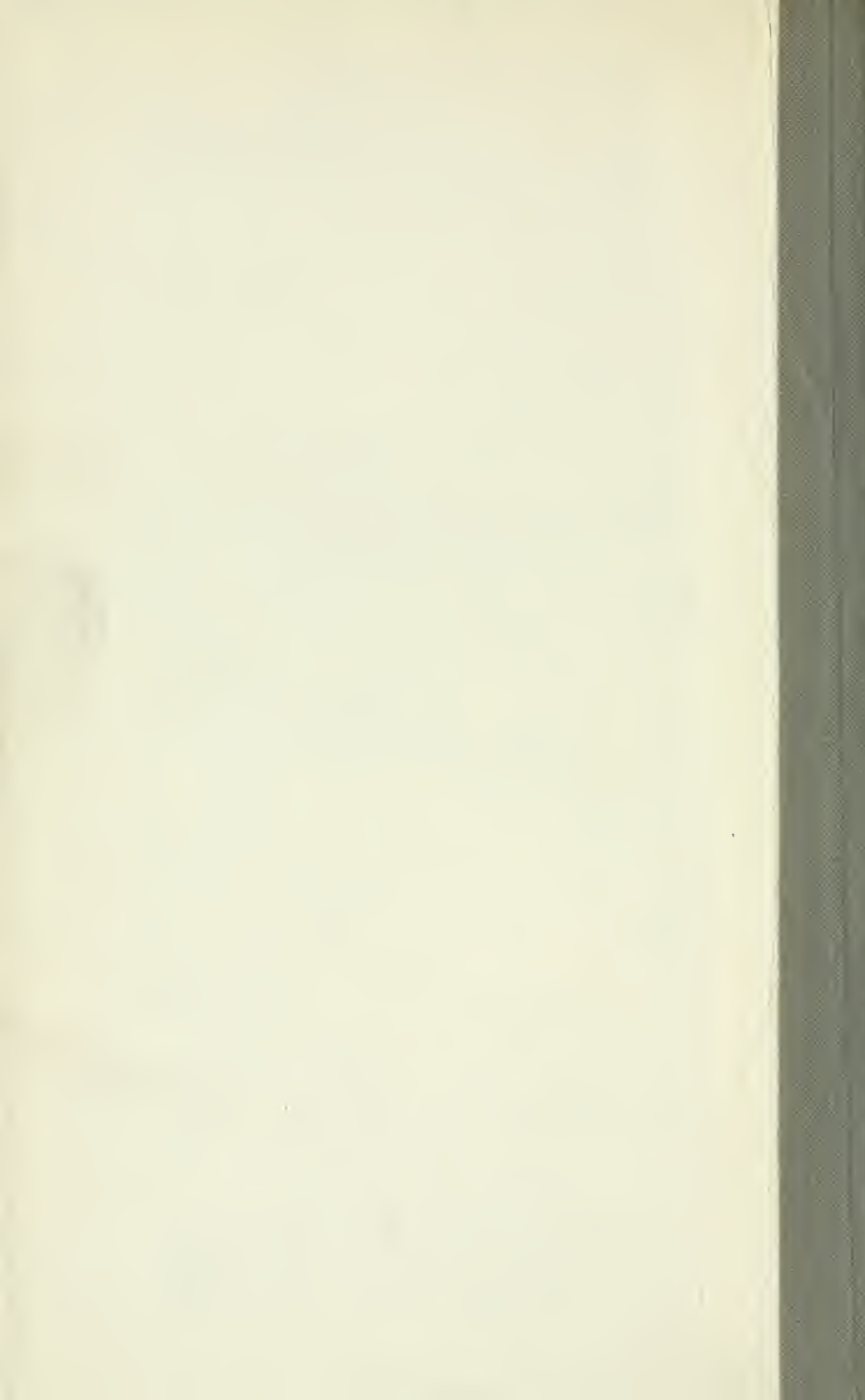
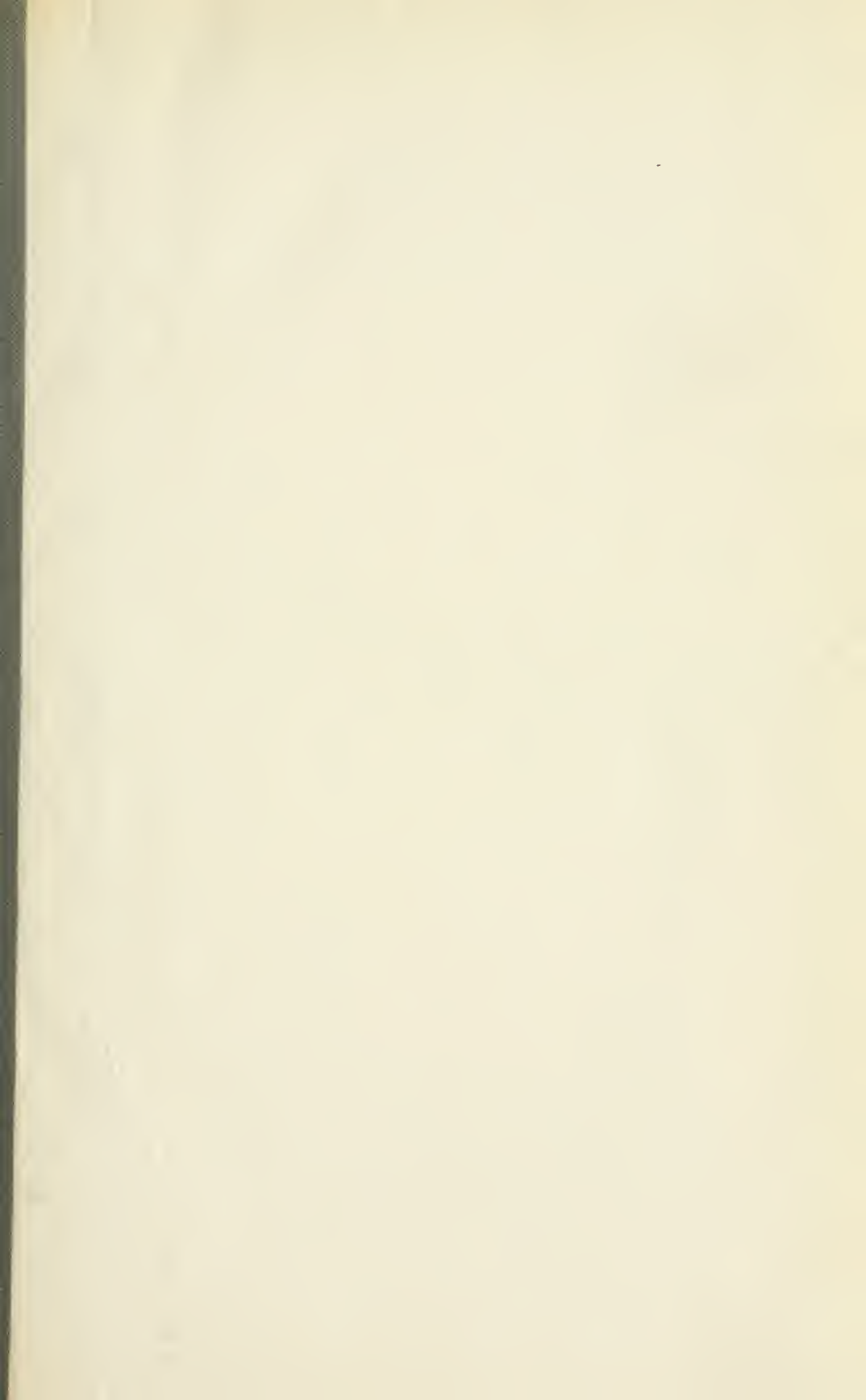


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Vol. IX.

1900

NEW SERIES.

THE OPHTHALMIC RECORD

A Monthly Review of the Progress of
Ophthalmology.

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RETINITIS CIRCINATA.
DE SCHWEINITZ.

THE OPHTHALMIC RECORD

A MONTHLY REVIEW OF THE PROGRESS OF
OPHTHALMOLOGY.

VOLUME IX.

CHICAGO, JANUARY, 1900.

NO. I. NEW SERIES.

ORIGINAL ARTICLES.

A CASE OF RETINITIS CIRCINATA.

BY G. E. DE SCHWEINITZ, M.D.

PHILADELPHIA.

With Colored Frontispiece.

Retinitis circinata, as we now understand the affection, was first accurately described by Fuchs in 1893, and constitutes a disease which from the clinical standpoint is well understood, and has been quite frequently observed, although but few cases have been recorded in this country. In adding to the list of those already published it is unnecessary to review the literature, inasmuch as a brief but complete analysis of this will be found in William E. Bruner's interesting paper on this subject.*

Mrs. C. K., aged 77, born in America, widow, came to the Jefferson College Hospital, April 14, 1899, with the hope of obtaining relief for her defective vision.

History.—The patient does not remember that she had been required to seek medical advice before the onset of her present ocular trouble. She is the mother of six children, four of whom are living and healthy; two died of tuberculosis of the lungs, aged respectively 25 and 35 years. No other members of her family or of that of her husband appear to have suffered from tuberculosis. She has had one miscarriage, but there is no history of syphilis. Her husband died of nephritis. Her vision began to fail eight years ago, unaccompanied by constitutional disturbance or

**Annals of Ophthalmology*, VIII, 1899, p. 309.

local signs of inflammation, and the failure of sight which then took place, according to the patient's statement, has remained practically unchanged to the present time.

Examination.—The patient for her years was a well-preserved woman, and gave no evidence of constitutional affection. The specific gravity of the urine was 1012; it contained neither albumin, sugar, nor casts. The blood examination, made October 14, 1899, by Dr. R. Rosenberger, was as follows:

Hemoglobin, 85 per cent.

Red corpuscles, 4,560,000.

White corpuscles, 8,125.

Comparative count of white corpuscles:

Lymphocytes, 24 per cent.

Hyaline cells, 12 per cent.

Finely granular oxyphile-cells, 63.5 per cent.

Coarsely granular oxyphile-cells, .5 per cent.

Eyes.—V. of R. E.=with proper convex glass 2/CC. The pupil reacted normally to light and shade. There were numerous spicules in the lens, especially downward and inward. The rest of the media was clear. The disc was an irregular oval, containing a small physiological excavation; its outer margins were fringed with patches of choroidal disturbance. There were no special lesions of the retinal vessels and no hemorrhages.

The entire macular region and some distance beyond it were occupied by an extensive deposit of yellowish-white material, slightly raised, over which the retinal vessels passed. This exudate resembled that, presently to be described, in the fundus of the opposite eye, but covered the macular region and did not surround it. Its temporal end was notably thicker than the edge toward the disc. Through it patches of pigment accumulation were visible.

V. of L. E.=with proper correcting spherical 2/CC. There were some striations in the lens. The optic disc was nearly round, its nasal half of good color, but the temporal portion, especially downward and outward, was discolored, while in the center there was a shallow excavation, or rather, light spot.

Beginning one disc's diameter from the edge of the papilla above, and almost at its edge below, and following the sweep of the superior and inferior temporal vessels, was an irregular zone of yellowish-white exudation, broader and almost continuous in the upper curve, and somewhat narrower and broken in the lower. The temporal end was slightly

interrupted. The edges of this band were indented, corrugated, and somewhat fringed with pigment. The circle extended a considerable distance beyond the macula.

The muscular region itself was diseased, the lesions consisting of patches of irregular pigment resting on areas of yellowish exudate. The retinal vessels everywhere passed over the circinate deposits, which were slightly raised above the level of the eye-ground, and were normal in appearance; the rest of the fundus was comparatively free from disease.

The patient was not again seen until October 13, 1899, or five months after her original visit to the hospital. Vision was practically unchanged; but the ring of exudate was more broken than when it had been originally examined, these breaks being chiefly evident above and on the downward curve. Scattered along the line of the lesion were numerous cholesterol crystals, principally below. The disease in the macular region had become more extensive, and was represented in the visual field by a scotoma, although it was not possible to demonstrate a scotoma indicating the circinate deposit. The condition of the right eye was about the same as has been described, except that there was a hemorrhage between the disc and the macular exudate.

From the accompanying water-color, made by Miss Margaretta Washington at the time of the patient's original visit in April of the present year, it will be seen that the lesion is an exceedingly typical one, the white spots having for the most part coalesced and surrounded the macular region after the manner of a wreath, the drawing being somewhat analogous to the excellent one published by Mr. Lawford,* although in his case the greatest breadth of the lesion was on the temporal extremity of the ellipse and the macular disease more pronounced.

It will be remembered that Fuchs originally regarded these white patches as fibrinous exudates which had taken place in the deeper layers of the retina, while De Wecker denied the special character of the disease, which he attributed to fatty degeneration, the result of hemorrhages. We know, indeed, that hemorrhages may accompany the affection, and that there may be a development of new-formed blood vessels in the retina, as reported by Fridenberg. Dr. Amman, who has had the opportunity of making a microscopical examination of a case which was, perhaps, not typically circinate, found that the white spots consisted of fat cells clustered where formerly hemorrhages had been present. In the present instance the evidences are that hemorrhages have preceded the disease.

**Trans. Ophth. Soc. U. K.*, Vol. XVI, 1896, p. 89.

Nuel believes that the white spots of retinitis circinata represent a fibrinous exudate, in which fatty changes may take place in the later stages, and that they are situated in the external layers outside of the layer of the internal granules. Indeed, he would limit the location of the disease to the so-called layer of Henle, but as W. G. Laws in reviewing Nuel's paper states, such a restriction is impossible, as cases have been reported, one by Laws himself, in which the white spots were situated on the nasal side of the disc. The central pigmentary changes which have been recorded are ascribed by Nuel to a former peri-foveal detachment of the retina. Again Laws disputes this conclusion, because in his own case, although there was pigmentation in the center of the retina, vision was two-thirds of normal. There was no absolute, hardly a relative scotoma, conditions which he thinks would be difficult to reconcile with the theory of detachment.

A CASE OF IRIDO-CYCLITIS INVOLVING HEMORRHAGE AND HYPOPYON, AND EXTENSIVE DEPOSITS IN THE VITREOUS, WITH FINAL RESTORATION OF GOOD VISION.

BY EDWARD J. BROWN, M.D.

MINNEAPOLIS, MINN.

On August 13, 1898, A. B., aged 32 years, a grocer's clerk, of good family and personal history, and father of a healthy babe, was referred to me by Dr. R. M. Peters. Since morning, not over three hours, the left eye had been red and painful. The previous evening there had been only slight irritation in the eye. I found vision of both eyes 20/xx, in the L. some pericorneal and general bulbar congestion. The pupil, somewhat contracted, still reacted to light. Has had a cold the past week, and he has often noticed pain in his knees before a storm.

He was ordered a 4-grain solution of atropia, to be frequently repeated till the pupil was fully dilated, hot water and moderate doses of sodium salicylate. Vigorous treatment during the succeeding three days only resulting apparently in increasing the violence of the disease, mercurial inunction was resorted to on August 16th. On September 1st he had been improving for a few days. September 5th there was severe pain in the morning, and I found a hemorrhage in the anterior chamber. One-half ounce of blood was drawn from the temple. September 6th blood absorbed. September 7th he was put in bed and given 30 grains of sodium

salicylate by enema every two hours. September 21st the eye was free from pain and congestion, and patient was ordered small doses of K. I. because of vitreous deposits which obscured the fundus and permitted only V. 13/200.

September 23d the eye was painful and congested; 25th, suspicion of pus in the anterior chamber; 26th, a decided hypopyon, which, under vigorous treatment, had become absorbed two days later. October 21st the eye is white and free from pain. Counts fingers at three feet. January 4, 1899, slight pain around the eye at times, pupil slightly dilated and iris pressed forward, giving a shallow anterior chamber. Pupil reacts to light, but mydriatic shows that some adhesions have formed to the anterior capsule. Patient is dizzy; has a temperature in the evening of 99.5° and vision 20/200. Two weeks before vision was 14/100. Has been taking small doses of iodides of mercury and potash. The eye had remained free from congestion, and the synechiæ had resulted from a process so quiet as not to have been suspected. The use of atropia for a few days made no impression upon the adhesions, and was discontinued. A few large doses of sodium salicylate was followed by normal temperature. Daily applications of galvanism were now determined upon (without cost to the patient). He was given from one to two milliamperes according to the sensibility of the eye, with change of pole every five or ten minutes. This was continued for nearly seven months, at the end of which time the vitreous had cleared sufficiently to permit vision of 20/50 +, and with +1.50 = +1.50c. axis 180° , vision of 20/30, and Jaeger 3 at 12". A late examination shows the eye to have remained as at the close of treatment, except that the iris and anterior chamber are now in normal relation, and the eyes are entirely comfortable.

Two facts are especially noteworthy in the history of this case: First, the case was seen within a few hours of its inception, when the pupil was readily dilated, and yet, in spite of as vigorous treatment as such a case would justify, with atropine and hot fomentations locally, and full doses of sodium salicylate, the disease rapidly extended and threatened to result in atrophy of the globe. In the second place, the steady but very slow recovery of the eye under the use of galvanism in long sittings with small doses, one to two milliamperes, requiring from two to six volts of a 110-volt constant current, as measured by the controller manufactured by the Chicago Electro-Medical Company.

39 Syndicate Block.

A CASE OF CONGENITAL INCOMPLETE OPHTHALMOPLEGIA EXTERNA.

BY F. W. MARLOW, M.D., M.R.C.S.E.

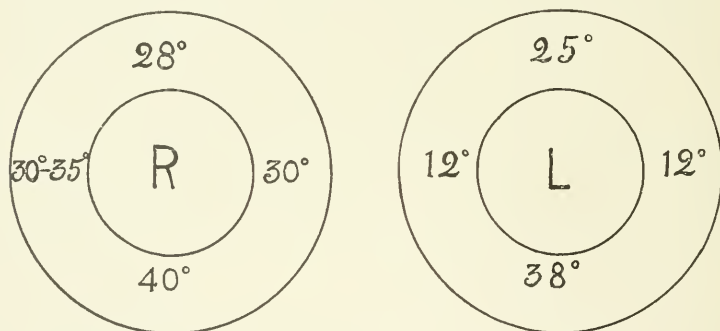
SYRACUSE, N. Y.

Illustrated.

Mrs. B. W. S., age 33, of neurotic temperament, subject to attacks of melancholia, was first examined in November, 1899.

She complained of headache, both vertical and occipital, to which she has always been subject, and of occasional nausea, vertigo, subjective sensations of color. There was also marked asthenopia, photophobia and some indistinctness of vision. She had never experienced double vision.

She had always been obliged to turn her head to look at objects.



Examination showed nebulæ of both corneæ, pupils normal, fundus normal.

Corneal astigmatism in R. $+2D$, axis 90° ; in L. $+2D$, axis 100° .

V. R. $6/12$ C $+1.5D$ 70° $6/9$ +

V. L. $6/36$ improved by $+0.75s$ Accommodation normal.
 $+1c$ 90°

After scopolamine was instilled

the R. accepted $+0.25s$ $+1.5c$ 70° } bringing V. to $6/9$.

L. accepted $+1.25D$ sph. $+1D$ cyl. 90° } bringing V. to $6/18$.

The outward and inward movements of the eye were evidently defective and examination by Stevens' Tropometer gave the following rotations, which are recorded diagrammatically, the circles representing the patient's eyes as looked at by the observer, the upper numbers representing upward rotation and so on. This method of recording rotation permits easy comparison of the two eyes.

There was orthophoria in the primary position.

With a red glass there could be demonstrated homonymous diplopia in the lateral portions of the field.

The right eye was slightly more prominent than the left.

There was no ptosis.

Although it is conceivable that the condition may be due to primary defective development of the extrinsic muscles themselves, the more probable explanation is the existence of some nuclear lesion. Every muscle appears to be more or less affected, the defect in the muscles acting in the horizontal plane, being much more marked than that of those acting in the vertical.

The family history throws no light upon the case. Birth was not known to be other than normal, and was stated to have been such by the patient.

THE RELATION BETWEEN CHORIOIDITIS AND RHEUMATISM.

BY T. EDWARDS CONVERSE, M.D.

LOUISVILLE, KY.

Recent research has demonstrated that about one half of chorioidal troubles, exclusive of traumatism, are due to syphilis; and it is not the object of this paper to speak about this class. Of the other half of cases, about 80 per cent of them, or 40 per cent of all cases of chorioidal trouble, are due to the uric acid diathesis, or is really an attack of rheumatism of the chorioid.

If we review the anatomy of the chorioid in a brief way we find that the middle coat of the eye is virtually a very vascular coat well supplied with capillaries. It is a coat composed of a series of minute plexus of vessels formed from the short posterior arteries, which also extend forward toward the ciliary body and iris, and help to furnish the blood supply of these parts. The meshes of these vessels of the chorioid are the finest and most numerous of any part of the whole body. It is estimated that their capacity is seven or eight hundred times the capacity of the arteries

that supply them. This being the case, from the laws of physics, the current through them must be very slow and sluggish, in fact so slow that it could hardly be called a current.

Uric acid is known to have a decided influence upon the tissues with which it comes in contact, especially upon the walls of blood vessels, producing a thickening and a lessening of their caliber. In the chorioid, where the blood supply is very sluggish and the capillaries very small, the uric acid in the blood has every advantage of coming in contact with the walls; and a change takes place due to the local toxic effect of the salt. There is a diminution of the caliber of the vessels, a partial or complete stopping up of them, producing pathological changes. The form most commonly seen is a change, eventually producing atrophy, due to an insufficient blood supply.

It is not necessary to go into the pathology or a description of the conditions found in chorioiditis, for all are familiar with them. Not every patient who is a victim of the uric acid diathesis or is a sufferer from rheumatism has chorioiditis, for rheumatism does not always attack the same portion of the body, but is generally found in those parts most exposed to dampness and sudden changes of cold. Consequently it is the oftener found in the arms and legs. We know that cold has a tendency to cause the deposit of uric acid crystals in the tissues, and heat materially aids in redissolving them and removing them by the circulation, and permitting their elimination. The eyeball is in a cavity surrounded to a great extent by a layer of fat and a copious blood supply which keeps it warmer than many other portions of the body; and this may be a reason why we do not see more cases of rheumatism of the eyeball. Rheumatism of the chorioid is not always accompanied with pain, but a very slight amount of pain-producing elements, on account of the large sensitive nerve supply, will attract the attention quickly, and means to relieve this will be immediately used.

The class of patients who more frequently have this trouble are those who are chronic rheumatics with their trouble situated in different parts of the body. In getting the history of these patients care should be taken to elicit whether they have in the last few years had any attacks of rheumatism.

In looking over my casebook I find twenty-three cases of chorioiditis recorded. Ten were due to syphilis, two with a history of rheumatism and syphilis, and ten where there was a clear history of recent attacks of rheumatism before the eye symptoms were noticed. Some of them even had rheumatism so well marked in the joints that they were unable to

come to the office, and I had to see them at their homes. All of these were placed on the salicylates, and there was an improvement in all, although all did not get well. The rheumatic troubles in the rest of the body improved at the same time. The salicylates do not seem to have any decided effect on the atrophied areas, except possibly to assist in the absorption. Of course other treatment when demanded was combined with the salicylates, as potassium iodide, mercury and pilocarpine. Migraine when combined with attacks of blindness, I believe, is frequently due to the same cause; for many of these attacks respond quickly to the salicylates when they are able to retain them in solution, and if this treatment does not cure, it often has the effect of making the attacks less frequent.

I believe that examination of the urine will often aid us in finding the cause of the chorioidal trouble. One very interesting case was a man about forty, who had well-marked chorioidal atrophy in spots, which were continually increasing in number, although the potassium iodide and mercury were faithfully used. I called for a specimen of urine, and found that there were only 2 grains of urea to the ounce, or only 104 grains eliminated in the twenty-four hours (he passed 52 ounces of urine in the twenty-four hours), when it should have been in the neighborhood of 500 grains. This man was placed on 20-grain doses of the salicylate of sodium every four hours, and in a very few days the amount of urea had increased to 300 grains in the twenty-four hours, and in a very few weeks had arisen to 460 grains, the highest I could get it. There were no kidney lesions. From that time no more new areas of chorioiditis formed, and those which were present went through the usual course. Since that case came to my notice I have found in several cases that as the amount of urea increased in the urine, the chorioidal trouble seemed to diminish, and an arrest of the disease took place. The atrophied spots of course could not be restored to a normal condition.

ELECTROLYSIS IN GRANULAR DISEASE OF THE EYELIDS.

BY T. D. MYERS, M.D.

Fellow of the College of Physicians of Philadelphia, etc.

In the year 1890 I was first led to the trial of electrolysis in the treatment of granular disease of the eyelids, because I was convinced that any successful plan of treating this disease must first of all include some means of killing or removing from the tissues the micro-organisms existing there, without permanent injury to the normal conjunctival structures.

And secondly, it must enable us to remove or render less easy of assimilation the excess of nutriment, which, in the form of albumin and albuminoid substances, is produced by the rapid disintegration of granular tissue, and which when absorbed acts as a rich mulching material to the fixed tissue cells, stimulating their proliferation far beyond the degree required for the formation of healthy tissue, and ending in the formation of the so-called "hypertrophies" found in the substance of mucous membranes affected with chronic granular disease. Tried upon these lines, it was clear to me that none of the usual plans of treatment could be expected to succeed with certainty, for the reason that while it may be admitted that it may be possible by a purely antiseptic plan of treatment to kill the bacteria, antiseptics cannot interfere to any degree with the process of over-stimulation taking place in the fixed tissue cells, and this process can go on indefinitely, when it is once started, without the aid of micro-organisms. If antiseptics act by coagulating the albumin in the bacteria, as is quite possible, the use of these substances for this purpose is open to the objection that when used in sufficient quantities to kill the bacteria they become dangerous to the albuminoid constituents of the normal structures, as the extent of their action cannot be controlled. On placing the poles of a galvanic battery in uncoagulated albumin it will be seen that the albumin is coagulated mostly at the extreme end of the negative pole. I place a great value on this fact, for by means of it we are able to attack the disease in its stronghold. By using a very delicate platinum or iridium electrode, not thicker than the finer needles used in removing hair, I found I was able to pierce the epithelium without destroying it, and to follow the supply vessel of a granulation to its source of origin and coagulate the albuminoid nourishment at the fountainhead, in the hypertrophies in the deeper layers of the membrane. These hypertrophies which occur in the fixed tissues of the conjunctiva cannot be reduced by caustics without permanent damage to the epithelial layer, nor can they be reduced by the application of flat electrodes to their surfaces, for the repeated application of these flat electrodes means the repeated destruction of the epithelium, and scar tissue must and will result. Electrolysis with low current produces molecular death in living tissue, but by judicious application of it, molecules may be removed from the structures of an organ without destroying the form of the organ. It is a minute process, and it is perhaps only applicable to thin membranes, and small and delicate organs. Applied in the manner I will again describe, it has in my hands proved the only method which will reduce the hypertrophies in the conjunctiva without injury to that membrane. The current required is a

very weak one, but to insure steadiness, a battery of not less than thirty ordinary ammonia cells should be used. A reliable milliampere-meter is an absolute necessity. A current of one and a half or two milliamperes is sufficient. The needle should be placed in the tissues, which of course must be well under the effects of cocaine before the contact with the positive pole is made. It must be kept in place until the effect of the electrolysis is evident by the escape from the sides of the needle of a white pasty mass. Three or four punctures should be made in each hypertrophy, but of course the number required depends entirely upon the extent of the thickened tissue. In the eight years I have been using this agent I have never seen a reaction result which could alarm the most timid operator. I have made as many as twenty to thirty punctures at a single sitting many times. In 1891, when I published my monograph, entitled "A Study of the Modern Pathology and the Treatment of Chronic Granulations of the Eyelids," I reported seven cases treated by myself, and one case treated at the United States Naval Hospital in Philadelphia by Dr. C. J. Decker, United States Navy. Since that time my case books will show hundreds of cases treated by this method, and so satisfactory has it been that I have ceased to use copper and silver almost altogether in my office management of chronic granular disease of the eyelids. Electrolysis is clean and precise, and I apply it in all cases of chronic or semi-acute inflammations of the conjunctiva where the surfaces are roughened or granular, or where the inflammation is confined to spots or foci. In cases without hypertrophies, and in clearing out ulcers of the cornea, I use a ring made by bending a thin platinum needle around a probe, which leaves in the middle of the needle a ring of from two to five m.m. in diameter. I twist the two ends of the needle together and fasten them in an ordinary holder. With this little instrument it is easy to remove a single granulation from the surface of the epithelium with the least possible disturbance of its surroundings and smooth off by gentle touches any roughened spots found there.

In "An International System of Electro-Therapeutics," edited by Biglow, and published by the F. A. Davis Company, of Philadelphia, in 1894, Section J, page 6, will be found a comparison of my method with that of George Lindsay Johnson, of London, which was published in the *Archives of Ophthalmology*, April and July, 1890. It will be seen by this comparison that the two methods are essentially different, and aim at entirely different results. In Johnson's method the epithelium, and indeed the whole conjunctiva, is destroyed by what is practically an application of an electro-cautery, for Johnson incises the

conjunctiva deeply and cauterizes the incision by a strong electric current, while my own method aims at saving the epithelium, and doing the work in the hypertrophied tissue of the conjunctiva without destroying its morphological character. In the course of my experimentation I had tried and discarded all flat electrodes long before the description of them was published by Simeon Snell, of Sheffield, in the *Ophthalmic Review* of London for July, 1897. I found that while they served well enough for the removal of surface granulations, if carefully handled, they were of no use whatever in attacking the hypertrophies, and that the repeated application of them defeated the very end in view, viz., the conservation of the epithelial tissue and the preservation of the form of all the conjunctival structures. I have seen scar tissue result time and again from the too vigorous use of flat electrodes to the surfaces of hypertrophies. Howard F. Hansell, of Philadelphia, published in the *Philadelphia Polyclinic* of June 25, 1898, some observations on the use of the flat electrodes described by Snell, but as he imitated the method of Snell precisely, further reference to them is unnecessary.

TWO CASES OF A PECULIAR VISUAL PERVERSION.*

BY F. C. HOTZ, M.D.

CHICAGO.

It is often said there is nothing new under the sun, and it may be that others before me have seen cases like those I wish to report. But I do not remember of ever having seen a report of such observations in our journals; and to me they were something entirely new, as in the twenty-five years of my practice I have never before met with any similar cases.

Case 1. October 5, Elsie H., a very bright girl of 10 years, was brought to me by her mother, who informed me that two weeks previously she gave her daughter some medicine for nocturnal enuresis. After the girl had taken the medicine one week the pupils were enlarged, and her sight was disturbed in a peculiar way; the medicine was then discontinued, but the visual disturbance persisted. Two years ago when taking some medicine for the same trouble her sight was disturbed in the same way for some time. She could not read with the book in the usual position, but read quite fluently when she turned the book upside down. At twenty feet the test types looked to her inverted, but when the card was

*Read at the December, 1899, meeting of the Chicago Ophthalmological Society.

turned upside down the letters appeared straight, and she read them correctly to No. 30 inclusive. With a 2.50 D before the eyes she read the same letters when the test card was in the right position; but could not read them (because they appeared upside down) when the card was inverted. Large objects, however, like persons or houses, did not look to her turned upside down. After complete atropinization the visual disturbance disappeared entirely; the eyes showed normal fundi and V. 20/30 with + .50 D. And when the eyes had recovered from the effect of atropine the visual disturbance did not return.

The medicine the girl had taken evidently contained belladonna, as shown by its mydriatic effect on the pupils; and it also had most likely a slight effect on the accommodation; but this, of course, could not have caused the singular perversion of vision, for which I am unable to find any explanation.

Case 2. Two weeks later, October 19, a boy 6 years old was brought to my office for a somewhat similar disturbance. In this case no medicine had been given; the boy is not left-handed, but in copying numbers he wrote them as we see them in the looking-glass: for 18 he wrote 81, for 5 he made a 2, for 13 he wrote 31, and in reading he turned the book ninety degrees, or even completely upside down; he could not read with the book in the correct position. At twenty feet, however, the letters appeared to him upright, and he could read them all correctly. His V. was 20/10; emmetropia under homatropine and normal fundi. While under the effect of homatropine he could read with the book in the correct position, and copied the numbers correctly when a + 2.50 D was put before his eyes. His mother informed me, five weeks later, that she had not noticed any more signs of the former visual perversion.

THE OCULAR AND ORBITAL EXPRESSIONS OF EXCESSIVE DILATATION OF THE PNEUMATIC SINUSES OF THE SKULL.*

BY ROBERT SATTLER, M.D.

CINCINNATI, OHIO.

Ophthalmic surgery deserves no little share of credit for having advanced along empirical lines our knowledge of the obscure morbid processes which invade the pneumatic sinuses of the skull. This is mainly owing to the not infrequent presence of ocular and orbital symptoms, so that the surgical management of these cases falls within its scope.

*Synopsis of Article Read at Utrecht Meeting in August, 1899.

It is by common consent of opinion admitted that there is nothing more uncertain than an accurate diagnosis of certain obscure chronic affections belonging to this category. Clinical evidences are, as a rule, absent, or so indefinitely outlined that they do not even suggest as probable the existence of such a lesion. It is also true that in those eminently chronic cases (and reference is here confined to these), characterized by an almost interminable course and wholly latent clinical manifestations, the only evidence upon which the diagnosis must rest may be ocular and orbital symptoms. Although (in exceptional cases only) these may develop during the inception of a lesion which has invaded the pneumatic cells of the ethmoid and frontal bones, they are certainly more likely to be present long before other general or special symptoms of sinus disease have come about. It is far more common to observe orbital and ocular manifestations at a later period, especially if a lesion of the maxillary and sphenoidal sinuses is in progress. Here, again, we must admit that they are preceded throughout by the absence of other clinical evidences.

Anatomists have long since familiarized us with accurate descriptions of the topographical relationship, dimensions, etc., of these cavities, but reliable pathological data for accurate diagnostic purposes, which might direct surgical interference not alone as justifiable but as necessary, have been as conspicuously absent.

There is little doubt that the nature of the disease and the locality affected are responsible for this difficulty of diagnosis. The bony encasements of these cavities almost necessarily decree that the morbid changes which are enacted will be unattended by clinical or other manifestations. Then, again, the evidences which are present may only indefinitely suggest a disease of the air-sinuses, so that the seat and origin of the lesion are not at once traced to these secluded areas. Moreover, many lesions hitherto considered obscure, and especially certain expressions of obstinate neuralgia (of which neuralgia of the mastoid is the most frequent), are often found to be remote sequences of mysterious impulses, or obscure pathological changes starting within these cavities. In view of all this, it is plain that it is generally impossible to establish an accurate diagnosis in these obscure chronic expressions of sinus disease until an operation for exploratory purposes is practiced. In other words, if we encounter pain, localized or constant, and not assignable to other tangible causes—if, in addition, we find proptosis, with or without lateral displacement of the globe and diplopia (which often in these cases is transitory)—if these symptoms, one and all suggesting only indefinitely a lesion of the cavities, declare themselves, there is but one guide to clear up the diagnosis

and obtain reliable information, and this is, to resort to carefully conducted exploratory surgery.

It is the purpose of this communication to call attention to a rather uncommon expression of sinus lesions, and to inquire into its probable cause. I refer to the excessive dilatation of the capacity and dimensions of the pneumatic cavities to proportions which must be considered abnormal, even if we take into full consideration the individual and physiological variations which craniological investigations have fully demonstrated. The point, however, which merits attention is not so much the abnormal or excessive increase of size, but the fact that when surgical interference is practiced to meet and overcome other indications, the air-cells are found empty. The most important disclosure, however, of all may be that, in consequence of the great distension of the cavity and latent pathogenic invasion of its mucous lining, an insidious necrotic lesion attacks the walls of the cavities, and only after that has come about deformity of the eye and orbit call attention to, or lead, through surgery, to the discovery of this complication.

On the part of the maxillary sinus, the outer or external border of the floor, and the superior angle adjacent to the roof and inner canthus, are prone to be the localities first affected. On the part of the ethmoid, the walls of the anterior cells adjacent to the inner and upper margin of the orbit are most commonly attacked. A displacement of the *os planum* and the medial walls also occurs, but this is less common.

The only inference we can draw from this is that a pathological process must have been present within the cells at some remote antecedent period. The progress of this lesion being wholly latent, no other clue of its presence is left except an abnormally dilated cavity, the walls of which at subsequent periods are liable to be invaded by trophic changes. If the maxillary sinus is involved, deformity of the eye and orbit is often the most conspicuous feature. The globe in such cases is pushed upward and outward, while the inferior margin and the entire floor of the orbit appear elevated. If the ethmoidal cells undergo this abnormal increase of dimensions, lateral displacement and proptosis may be prominent symptoms.

How explain the empty contents and the abnormal increase of capacity and dimension in certain cases belonging to this category?

In every case, of course, the question concerning a physiological anomaly of size comes up. This applies with equal truth to all the air-cavities of the adult skull, and must be considered the rule rather than the exception. To avoid error on this point I have included only those

cases of excessive increase which were attended by deformity of the contour and confines of the orbit, and with displacement of the eye—this showing furthermore that a contraction of the lumen of the orbit has taken place. The main point of interest, however, is that an abnormal increase of an empty air-sinus (especially of the ethmoidal cells and maxillary sinus), after being for an interminable period the seat of a latent pathological process, and giving no clinical evidence of its presence, is disclosed to us only after localized necrosing otitis has invaded the thinned walls of these cavities. The fact that the deformity may be slight or that neither ocular or orbital symptoms are present, makes the diagnosis at this stage often impossible. Then, again, slight deformity of the face, orbit and eye may be present, but is overlooked owing to the declaration of a chronic erosive process on the part of the cutaneous covering and bone near the inner canthus, or even at more remote points. This may lead to an error in diagnosis—such cases being often mistaken for and treated as caries of the margin of the orbit or as an uncommon expression of nasal-duct and tear-sac lesions. It may also happen that the slow increase of deformity may suggest the existence of a neoplasm which subsequent surgery undertaken with a definite purpose fails to confirm.

These are in brief the reasons which prompt the publication of and which suggest the following conclusions based upon a limited personal experience with similar cases:

I. Enormous increase in size of the sinuses of the skull takes place without symptoms simply as the result of physiological causes as age advances. It is probable that the tendency thereto is increased by the presence of chronic and sub-acute catarrhal lesions of the upper respiratory tract.

II. Abnormal increase of capacity and dimensions results not infrequently amidst a wholly latent clinical course, if the sinuses become retention-cavities and are choked with densely packed granulation-tissue or with opalescent, non-infectious mucus as the result of eminently chronic and insidious pathological processes of low grade. Such a process may disclose its presence only after trophic changes have attacked the thinned wall of the cavities in question and there resulted in localized, necrosing otitis, attended—in some cases only—by visible deformity of face, orbital cavity or nasal chambers.

III. In another group of cases we are forced to the conclusion that, amidst a wholly latent course, the pathological process which is present terminates in caries and sequestration of the walls of these cavities, followed by deep bony or sub-periosteal perforation of the overlying soft

parts. Not infrequently, if this takes place, the retained contents of one sinus are discharged into an adjacent one. My own experience has conclusively demonstrated this on the part of the frontal with the ethmoidal—the frontal and maxillary and the ethmoidal and maxillary cavities. This discharge into the cell or cells of an adjacent sinus with subsequent slow distention may afford another explanation for the abnormal dilatation of these cavities, and applies in particular to those cases in which the lesion withdraws its activity from the deeper to the superficial structures, and the original lesion is lost sight of because of the predominant clinical features of its more external expression.

IV. Excessive dilatation is also met with as the result of degenerative changes which attack the rarified bone, but without terminating in caries and sequestration of localized areas, and which proceed without other declaration than the slow growth of osteophytes.

The sinus frontalis and ethmoidal cells are particularly prone to furnish the starting points for the so-called ivory exostoses, which are so fully known and described in the literature of this subject. It is not an improbable assumption that rhinologists will discover that, in certain cases at least of necrosing ethmoiditis, a lesion of the lateral walls attended by abnormal dilatation of the ethmoidal cells is present, and furnishes the starting point for an obstructive nasal lesion, just as dental surgery has so conclusively demonstrated that lesions of the alveolar processes of the canine and bicuspid are the secondary or associated results of degenerative lesions of the walls and floor of the maxillary antrum.

V. Exploratory surgery can alone accurately determine the nature and extent of the lesion which is present and suggest subsequent measures as the special needs may call for to prevent, relieve or permanently cure these obscure cases.

HEMORRHAGE INTO EYEBALL—A CLINICAL NOTE.

BY HOWARD F. HANSELL, M.D.

PHILADELPHIA.

Upon opening an eye a few days ago immediately after enucleation, the contents were found to consist mainly of a large clot of blood. This finding is unique in my experience, and perhaps worthy of mention. The patient was a man 48 years old. At the age of 13 he received an injury in the left eye, which caused permanent blindness. Within the last few months he had a series of attacks of inflammation of the eye, with

ocular pain and headache. During these attacks the right eye sympathized to the extent that he was unable to use it with comfort, and it also became congested and painful. The last of these attacks occurred one week before enucleation. It was accompanied by severe neuralgia and pronounced signs of inflammation. Fearing for the safety of the right eye, which was sympathetically irritated, he came to the Jefferson Medical College Hospital for treatment. The vision of the right eye was little short of the normal acuity; pupil responded to light; the media were clear, and there was no disease of the eye-ground. The left eye showed the deep injection of glaucoma; the cornea was clear; the anterior chamber almost annihilated; the iris convex forward; the pupil small, and in its circumference adherent to the anteriorly dislocated and entirely opaque lens; the upper inner section of the ciliary region was staphylo-matous; the sclera at this point very thin and apparently ready to burst; tension $+ 2$. Upon section through the meridian of the globe, the vitreous chamber seemed to be entirely occupied by blood to the exclusion of all clear vitreous humor. It was impossible to discover upon macroscopic examination the source of the blood, but its origin was probably rupture of a chorioidal vessel during the severe inflammatory attack of the previous week.

ABNORMALLY ACUTE VISION.

BY C. M. CULVER, A.M., M.D.

ALBANY, N. Y.

The manifest hyperopia of an eye, whose sole defect is hyperopia, is often, if not generally, supposed to be measured by the strength of the convex lens with which the eye, unaffected by a cycloplegic, has normal acuteness of vision, due allowance being made for the adaptation to the distance of the test-types. If the examiner owe it to the examined to provide the means of the maximum acuity of vision attainable, it is improper to let the assumption just stated figure among the premises from which conclusions are to be drawn. Many an eye, its ciliary muscle being normally contractile, has quite as good visual acuity as is generally considered normal, when seeing through a convex lens which later examination, made while the eye is in a condition of cycloplegia, shows to be stronger than the real correction of the eye's hyperopia. In such cases, proper allowance must be made for the aberrant rays passing through the dilated pupil nearest its periphery. The visual acuity of

many an eye is so great that the eye can see "normally," in spite of a deal of the convexity of the lens, which, according to the common assumption, above stated, gives the amount of its ametropia.

The incomplete squares, devised by Dr. Edward Jackson as tests of visual acuity, serve me more satisfactorily than do letters, hence are oftener used by me, though Snellen's and Wallace's letters are among my tests, to meet certain requirements. Snellen's normal is 80 per cent of Jackson's or Wallace's. A decade ago I devised test letters whose normal was that of the compatriots' just named; mine soon sank into innocuous desuetude, as regards my own use of them, for I became acquainted with Wallace's letters soon after the making of my own device, and like his better. Dr. Henry D. Noyes commended, in conversation with me, the standard of normality used in those I had devised, favoring it, for certain examinations, in comparison with Snellen's. When needing to make optometric examinations in the billiard-room of a state hospital, during a vacation, I learned to prefer, under such circumstances, Snellen's standard to the one requiring 25 per cent more visual acuity. In my consultation-room, in Albany, where uniform, artificial illumination and some similar aids facilitate the work, Jackson's standard seems the fair one.

As helping support my thesis that some eyes see well enough to appear to have normal visual acuity despite some convexity of lenses through which they see, it may be well to cite some cases of superior acuteness of vision. One eye of case 4844, of my records, had 200 per cent of Wallace's normal of visual acuity, *id est* 250 per cent of Snellen's; that patient's other eye had nearly 200 per cent of Snellen's standard; these percentages were found during cycloplegia of both eyes; before the induction of cycloplegia, each eye had had 100 per cent of visual acuity, according to Jackson's standard, and I had been unable to find a refractive error to explain the patient's asthenopia. During cycloplegia each eye was found to be astigmatic, and the correction of the astigmatism resulted in the patient's marked relief and gratification.

Each of the eyes of cases 3698 and 6231 had 187.5 per cent of Snellen vision. The left eye of case 4865 had 173 per cent, and the right eye of the same case had 150 per cent, of Snellen's normal. Dr. Jackson found each of my eyes to have 125 per cent of normal visual acuity, according to his standard, or 150 per cent of Snellen's. It is not supposed that these are very unusual cases; they are cited merely because they are the ones I recall. There are, probably, many like them in the case-records of my colleagues, as well as many others among my own. More than one eye from which I have extracted cataract has thereafter had more than

normal visual acuity, according to Snellen's standard; I have examined one aphakic eye, made so by an operation done by one of my neighbors, which had as fine visual acuity as any on which I have operated. I have heard of others. I have to-day (December 6, 1899) examined an eye that had 150 per cent of Snellen's normal of visual acuity; its mate had about the same amount, though I made no exact record of what it possessed; I have also, to-day, examined several that had more than the amount usually accepted as normal and none that had less than that amount; 77 per cent of the one hundred eyes I have last examined have had abnormally acute vision according to Snellen's standard, although some totally blind eyes figure among the complementary 23 per cent., as well as some eyes belonging to pension claimants, who cannot afford to see too well, or may not see as well as they can.

The question has been asked: Is the artificial illumination of test-types, as I use it in private work, conducive to vision that is better than the average, as ordinarily estimated? In some of more than a score of private consultation-rooms that I have visited, in several countries, the test-types have been quite as brightly illuminated as mine are, in others not so brightly. However that may be, I think mine are not excessively illuminated, nor do I believe that, beyond a fair amount, further illumination of the types helps the eye to distinguish them.

Case 8216 seems pertinent to the defense of my thesis: Mr. S., age 32, has had pains in right eye, somewhat increased by near work, for two weeks; blister, above right eye, advised by family physician, ineffective to relieve; no cycloplegic having been used, either eye, without artificial lens, had 100 per cent Jackson vision; with convex, spheric 1.0 D., each eye had same amount of vision of characters six meters distant. Both eyes together, each seeing through convex, spheric 1.25 D., had same amount. Javal's ophthalmometer showed 0.5 D. of corneal astigmatism, the minimum curvature of the right cornea being 80 degrees temporal (170 degrees trigonometric enumeration), that of the left cornea being horizontal. Ophthalmoscopy and skiascopy showed no astigmatism. Each optic nerve disc somewhat hyperæmic. Slight esophoria for six meters, much for thirty-five centimeters. Patient was told the advantage of the use of a cycloplegic and given his choice, whether it should be used. He preferred an optical prescription at once and a note to his family physician, concerning cycloplegic examination. The optical prescription given was convex, spheric 1.25 D. for each eye; patient returned before having optical prescription filled, and cycloplegic was used; the real correction was that of 0.25 D. hyperopia in the right vertical meridian, 0.5

D. in the right horizontal meridian, and of 0.25 D. of hyperopia in the left horizontal meridian, the left vertical meridian being emmetropic. The right eye, when examined without cycloplegia, had accepted an average over-correction of at least 0.375 D., the left eye one of 0.625 D. The temptations to digress, which are suggested by this case-history, are legion; the only purpose it may properly subserve, now, is to help, by illustration, to substantiate my thesis.

Whether this article be definite or indefinite, its title seems somewhat the latter, but was left as it is rather than replace it with a double-decker, which should state the entire matter to be discussed. If the sole subject were abnormally acute vision, it would be most interesting to search out all the *trouvable* concerning those traditional (not mythical) cases of students, one in Donder's clinic, the other at Landolt's, each of whom was so nearly free from astigmatism that he inquired why the stars were depicted as having scintillations; he saw each star shaped as we usually see the full moon.

I hope the foregoing may not be misunderstood as seeking to reflect adversely on Snellen's standard. Professor Snellen and I have discussed the standard, by correspondence and in conversation, and, while I cannot agree with all he holds concerning test-types, nothing could be further from my purpose than to pose as his rival. The recognition of the superiority of his ability to mine does not make an exhaustive draft on my humility. But I have examined a considerable number of eyes which had been pronounced devoid of refractive error and I have been told that such decision had been based on the fact that the eyes in question had normal visual acuity, without the aid of artificial lenses; the owners of which eyes have since declared themselves made more comfortable by the later correction of their refractive errors.

THE OPHTHALMIC RECORD.

*A MONTHLY REVIEW OF THE PROGRESS OF
OPHTHALMOLOGY.*

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NO. 1. NEW SERIES.

EDITORIALS.

THE STUDY OF OPTICS BY THE OPHTHALMOLOGIST.

The last twenty years have witnessed some striking and satisfactory advances in the standard of medical education, and the requirements exacted of those who would enter upon the practice of medicine and surgery, in any of their branches. But there remain many gaps in the educational scheme, that must be remedied before it can be regarded as furnishing a full preparation for practice.

One of these which especially concerns our branch of the profession is lack of training in the science of optics. The common view, that the preliminary requirements of the medical college, and its general curriculum, should deal only with those branches that are essential to all members of the profession, leaves no space for the teaching of such a special and technical subject as optics. Yet for the modern ophthalmologist a good training in geometrical and physiological optics is an absolutely essential part of a thorough education. The time has come when it can be rightly demanded, at least of all who would write and teach about ocular refraction, that they shall have some broad acquaintance with the subject.

For the present there is no probability that it will be included either in the general preliminary requirements or the medical curriculum. A few may obtain the needed knowledge of it as an unrequired part of their preliminary education. But for the mass of ophthalmologists, the only opportunity is through post-graduate self-instruction.

Fortunately one who has a moderate acquaintance with elementary algebra and geometry can take up the study of mathematical or geo-

metrical optics with the aid of books alone, and with a good chance of pursuing it successfully. Indeed, by beginning with elementary mathematics, and *being careful to understand each point before going on to the next*, one who under the tuition of others has acquired a strong distaste for the mathematics may come by self-training to keenly enjoy the form of intellectual exercise they furnish. It is an exercise, too, so totally removed from the ordinary stress of practice, or effort at literary production, as to have for the ophthalmologist much of the value of an intellectual recreation.

Many of the standard text-books furnish good accounts of the subject of refraction from the ophthalmic standpoint; and the more elaborate treatises of Donders and Landolt are available to all. The chapter on general optical principles, by Dennett and Cutler, in the American text-book edited by de Schweinitz and Randall, demonstrates many of the truths of refraction by somewhat original methods, which will aid some in mastering problems which have seemed difficult. The little "Hand-book of Optics for Students of Ophthalmology," by Dr. W. N. Suter, just published by the Macmillan Co., will also be found an admirable help to the earnest student.

The interest in this study will be greatly enhanced, and its truths far more firmly fixed in the student's mind, if he take pains, so far as practicable, to reproduce, by lenses and models, the physical actions about which he is studying. For this purpose some form of artificial eye will be helpful. But all that is essential can be done with trial lenses, and pasteboard and thread models. For the ophthalmic surgeon *thoroughly* trained in the matter of refraction the gates to success are wide open in any large town or city in the country. It seems strange that more do not master this important requirement for the performance of the best work in ophthalmic practice.

EDWARD JACKSON.

CORRESPONDENCE.

RETINAL SEQUELÆ OF DISEASES OF UNITED STATES TROOPS IN CUBA AND PORTO RICO.

COLUMBUS, OHIO, December 9, 1899.

TO THE EDITORS OF THE OPHTHALMIC RECORD, CHICAGO, ILL.

Dear Sirs,—In the OPHTHALMIC RECORD for October, 1899, the fourth paragraph from the end in the report of cases, *Retinal Sequelæ of Diseases United States Troops in Cuba and Porto Rico*, the statement is made, "it is to be assumed, then, that the lesion resulting from an acute cause is, in general terms, less apt to be influenced by treatment than one resulting from a chronic cause?"

This was intended to read as a question instead of a positive statement, since nothing in the evidence of the cases reported would justify any such sweeping conclusion.

I would be very glad if the RECORD would do what it can to correct this error.

Very sincerely,

W. K. ROGERS.

REVIEWS.

RETROBULBAR OPTIC NEURITIS.—In the *Royal London Ophthalmic Hospital Reports* for May, 1899, E. Nettleship gives the reports of one hundred and twenty cases of retrobulbar optic neuritis, in which the lesion affects the nerve behind the eye, but in front of the brain, and it does not depend either upon changes in the eye itself or upon disease within the skull. The entire class, not a large one, is by no means homogeneous; the cases indeed form a rather mixed assemblage, and one of their most obvious common characteristics is that they cannot be classed anywhere else. The cases of symmetrical toxic amblyopia—with tobacco amblyopia as the type—are outside the subject.

The optic nerve, like other nerves, is subject to inflammation beginning in itself; whilst, on the other hand, disease may be communicated to the nerve by the various parts amongst which it passes between the chiasma and the eye—the orbital tissues, the optic canal, the sphenoidal sinus. It is therefore likely on pathological grounds that two chief families of the retrobulbar neuritis under consideration exist; and one finds, in fact, that an assignment of the cases to one or the other of the two pathological families just mentioned is usually justified on clinical grounds.

One must, however, neither think nor speak dogmatically on this subject, for the opportunity of verifying the nature of any case of single retrobulbar neuritis must always be excessively rare—if indeed it should ever occur. And however sure one may feel that the pathological division into an idiopathic and a symptomatic family is correct, we shall continue to meet with some cases which, though undoubtedly belonging to one family or the other, cannot on clinical grounds, with our present knowledge, be confidently placed in either.

In the retrobulbar neuritis of which he is speaking, usually, as already stated, only one optic nerve suffers, and if both should be attacked there is an interval, commonly of months, sometimes of years, between the two.

The failure of sight is usually rapid, the climax being generally reached in from one day to four or five; but it is never really “sudden,”

as in embolism or arterial thrombosis. The degree of failure of vision varies extremely in the idiopathic cases; from the faintest "mistiness" of objects in the center of the field of vision to total loss of perception of light; it bears no uniform relation to the early ophthalmoscopical changes; and recovery of sight is possible even in the worst cases, provided that the improvement sets in tolerably soon. In the symptomatic class slight forms are much less common, and the prospect of recovery not nearly so good.

The field of vision is invaded in various degrees, but in cases of every degree and kind the central part is involved; and in the slighter varieties this is, as a rule, the only part affected. The defect is often more or less fan-shaped, spreading toward the periphery, though not constantly in the same direction.

The direct reflex action of the pupil is lowered, even in the milder cases, more than the loss of visual acuteness seems to warrant, and in the bad cases it is, of course, almost or entirely lost.

Pain about the affected eye is a very common symptom; though, as in so many other maladies, its value in diagnosis requires adjustment for each patient. It is of two sorts: spontaneous behind the eye and in the corresponding temporal district; and pain caused or increased by movements of the eye—sometimes by movement in one particular direction—or produced by pressing the eyeball back into the orbit. Observe carefully that the pain, however bad, is limited to the side of the affected optic nerve, and is not accompanied by vomiting. In the idiopathic cases the pain usually precedes the loss of sight and ceases when, or soon after, this occurs; it is a less frequent feature in the symptomatic cases, but when present in them is often more severe and much more prolonged, continuing for days, or even weeks, after the sight has failed.

He has never seen and very seldom heard of any external signs of inflammation, and such slight symptoms of it as are occasionally mentioned by the patient may perhaps be accounted for by his having kept the eye covered or closed during the painful stage.

Some ophthalmoscopical changes are usually present almost from the first in the idiopathic cases, but they are often very slight, and occasionally quite wanting; such early changes—various degrees of haziness of the disc, sometimes with decided swelling, but without hemorrhages, and with only moderate venous engorgement—point to a true, if not as a rule very gross, acute inflammation of the nerve. In some of the worst symptomatic cases, however, no change whatever can be seen at the disc for some weeks after the loss of sight.

Later on in cases of both families the disc almost always becomes pale, often very pale, whether the sight improves or not. In very few is it true that the nerve passes through an attack causing, even for a time, severe loss of sight, without some appearance either of early inflammation or late atrophy of the disc.

The inconstancy in the degree of visible papillitis and in the date and degree of the consecutive pallor doubtless indicates differences not only in the severity of the morbid process, but also in the distance at which it is seated from the eyeball.

The diagnosis of retrobulbar neuritis is seldom difficult if attention is paid to the cardinal points, viz: the mode and rapidity of failure of vision; pain; the pupil; the acuteness of V. (refraction being, of course, correct or corrected); the field examined on the perimeter, but specially the central area tested for insular defect by means of colored (red or green) spots of various sizes; the ophthalmoscopic appearances.

Retrobulbar neuritis of exceptionally rapid onset and high degree is occasionally difficult to distinguish from thrombosis of a branch of the retinal artery, or from possible hemorrhage into the sheath, until one finds on careful inquiry that the sight was lost rapidly, but not suddenly. It is important to distinguish the condition from congenital amblyopia of one eye, whether associated with a squint or not. Still more important is it not to confuse retrobulbar neuritis with hysterical amblyopia, an error into which one may be led by the frequency of this neuritis in neurotic women: the distinguishing marks are found in the state of the pupil and field, in the mode of onset, and in the pain when present, apart from whatever the ophthalmoscope may reveal. Whilst maintaining that the disc usually shows some inflammatory changes early in the case, Nettleship freely admits that such appearances may be absent or equivocal; and he therefore regards the investigation of the symptoms and the state of the pupil as more important than the ophthalmoscopic examination in distinguishing an early stage of retrobulbar neuritis from hysterical blindness of one eye. Another difference is in the severity of the loss of the sight; hysterical amblyopia is, he thinks, never slight in degree, whereas the retrobulbar disease may be of any degree from the very slightest to total blindness. In retrobulbar neuritis vision is not bettered by any assistance or suggestion; in many of the functional ("hysterical") cases the patient, though unable to see at first, improves after staring at the test-types, whether they are near or far set, and finally reads each successive smaller size with a jerk or rush, especially if coaxed by false lenses, which are represented as gradually increasing in "strength."

Central scotoma is, he believes, very common in hysterical cases, whilst, as already stated, it forms a constant feature in the retrobulbar disease.

Central localized choroido-retinitis often causes a well-defined insular defect in the field, and when the mischief comes on rapidly the diagnosis from retrobulbar neuritis may be difficult.

The distinction between an idiopathic and a symptomatic case of retrobulbar neuritis is sometimes quite easy; in other instances, as has been indicated, it may be difficult or impossible. To recapitulate the main differences: In the symptomatic family pain, when it occurs, is often worse and more lasting than in the idiopathic cases, visible changes at the disc sometimes much delayed, and recovery of sight less hopeful; paralysis of other cranial nerves (from the first to the seventh) and signs of disease of the bone at the base are fairly common in this family, whilst indications of chronic disease of brain or spinal cord—often incipient only—are far more frequent in the idiopathic family. But it must be pointed out again that the members of what he calls for convenience the symptomatic family vary much among themselves, far more than those classed as idiopathic, and it is to the idiopathic form that he asks most attention.

The idiopathic family is much the larger, and for that reason, and even more because this form of disease of the optic nerve, whether lastingly single or eventually double, is apt to prove a harbinger of some form of spinal sclerosis, this family is the more important form of the two.

The prognosis for sight in the whole idiopathic family is, generally speaking, good. The slighter cases often recover vision that is for all ordinary purposes perfect; and even in the worst cases improvement from nothing, or mere hand movement, to 6/12 more or less is not uncommon.

He derives the following conclusions as to the meaning of idiopathic inflammation of one optic nerve, or both nerves with an interval; the seat and nature of the local disease, the prognosis and treatment:

Sex.—Of the 88 idiopathic cases, 58 were in females, only 30 in males—two females to one male.

Age.—Of 86 (out of 88) cases in which the age when the attack occurred is given (or in double and complicated cases the age at which the disease began), 69 were 40 years or less, only 17 being 41 or more. Further, of the 69 under 40 years' limit, 60 were between 20 and 40; only three were below puberty (taken as 15), and of these two were girls not much below that age.

If one takes the distribution of sexes in relation to age, we find among the 60 cases below the 40 years' limit 48 females to 21 males, or

$2\frac{1}{4}$ to 1; whilst of the 17 patients above 40, the males numbered 8, the females 9—practical equality.

These figures show conclusively that this form of optic neuritis is especially a disease of the most sexually active period of life, and that during that period women are more than twice as subject to it as men.

Apart from age and sex, one can in a certain number of the cases discover something in the patient's history that may be fairly credited with a share, predisposing or exciting, in the attack, but in many nothing is ascertained by an ordinary inquiry.

Exposure to cold after depression caused by worry, or simply after or during physical fatigue, is noted in at least nine of his cases, and this number is no doubt below the mark.

A very definite history of gout in near relatives is given in about six of the series, and knowing the conditions under which such an inquiry is often made, one must take this number, too, as much less than the whole truth.

Syphilis was certain in two of the idiopathic cases, and probable in three others; but in the two cases where it was certain, the primary disease had occurred respectively twelve and twenty years before the eye attack, and in one of these the patient gave a clear history of malarious fever a few weeks before his eye failed. He thinks, therefore, one may for the present conclude that syphilis is very seldom the cause of idiopathic retrobulbar neuritis, except when it causes a gumma in or upon the optic nerve; and such cases, of which he believes he has seen several, he purposely excludes, placing them in the symptomatic family. Very different is the share taken by syphilis, whether recent or remote, in causing by one means or another a symptomatic retrobulbar neuritis. In the symptomatic family he has provisionally placed thirty-two cases, and syphilis was certain, or almost certain, in about seventeen of these—at least one-half; the primary disease dating from a few months to many years prior to the optic neuritis.

Lastly, the history shows in a considerable number of cases of idiopathic retrobulbar neuritis a predisposition to marked functional disturbance or organic disease of the nervous system.

Optic atrophy in the early stages of tabes often means, he believes, that the limb phenomena will be delayed, or perhaps never fully developed. Will it perhaps be found in the future that disseminated sclerosis beginning as single retrobulbar neuritis shows less than its usual tendency to become generalized? However this may be, if only one optic nerve be attacked, there is evidently less chance of escape from the general symptoms in cases where the second optic nerve becomes affected.

It is difficult, with the present imperfect knowledge, to understand the occurrence of acute disease in a portion, apparently well defined, of only one optic nerve, the active process lasting for a fairly constant period, and then passing off.

The rapidity of onset points to either inflammation or slight infiltrating hemorrhage, and of the latter—hemorrhage from a minute intrinsic vessel in the optic nerve—one has, he thinks, no clinical knowledge (the phenomena of the bleeding into the sheath-space are different). The character of the pain points to the orbital part of the optic nerve as the seat of the inflammation, and the frequency of early—however slight—inflammatory appearances at the disc can be explained by a lesion near to the eye. The almost constant involvement of the central or para-central part of the field indicates disease of those nerve fibers that come from the yellow-spot region, and that lie on the temporal side of the nerve near the eyeball and in its axis farther back. The scotoma often spreads out in a fan-shape from the center of the field toward or up to some portion of the circumference—not the same sector of the field in all cases; this seems to show that the morbid process tends to affect a wedge-shaped portion of the nerve, the apex of the wedge being at the macular fibers, the base at some (not always the same) part of the periphery.

In the treatment of retrobulbar neuritis, when seen early, he believes in the usefulness of counterirritation and the administration of iodides, and often of mercury. But one knows too little as yet of the natural history of the disease to speak strongly about the efficacy of any particular treatment, and allowance must be made, in the present state of knowledge, for apparent differences in the cause. Nevertheless it is true that most of the severe cases that have made a good recovery in his hands have done so under a vigorous treatment.

ALVIN A. HUBBELL.

REPORTS OF SOCIETIES.

SAN FRANCISCO SOCIETY OF EYE, EAR, NOSE AND THROAT SURGEONS.

NOVEMBER MEETING.

The President, Dr. W. A. Martin, in the chair. On behalf of Dr. Leo Newmark and himself, Dr. Martin presented a young man with the following history: Patient came to the Polyclinic August 11, 1899, stating that he had been under treatment for several weeks for headache, and was referred to Dr. Martin on account of eye trouble which had developed in the past week. On examination the right eye was fixed in the primary position, the only motion being obliquely upward and outward and downward and inward. There was no ptosis. Vision was normal excepting a small refraction error. Pupil did not differ from left side and reacted both to light and convergence. Fundus was normal.

Naturally he was troubled with double images, but his principal complaint was an excruciating pain in the left temple which extended to the vertex and was continuous day and night. He also complained of a numb feeling over the right eye.

Suspecting that an intra-cranial tumor located near the sphenoidal fissure was the source of the trouble, he referred the patient to Dr. Newmark for further investigation. Dr. Newmark reported that besides the nerves supplying the extra-ocular muscles, viz: the third, sixth and fourth, that the first and second branches and possibly the third branch of the trigeminous was involved to a greater or less extent. There was no history of a specific or other affection, and Dr. Newmark was of the opinion that there is a tumor, probably a fibroid, located to the right of the sella turcica. Careful examination was made as to possible trouble in the sphenoidal sinus, or intra-nasal trouble, but neither was found.

Patient was placed on specific treatment; inunctions and the iodid, running the latter up to 70 grains t. i. d. This treatment was continued about ten weeks, as the eye movement was found to improve. The pain, however, was continuous, and had to be controlled by morphine.

On September 18th, it was noticed that the optic disc looked woolly or edematous, and Dr. Martin predicted that the optic nerve was becoming involved, although vision had not yet suffered. Three days later when he came to the clinic, he was totally blind in the right eye. Dr. Newmark thought that under the conditions an operation was justifiable, and one was performed by Dr. Bazet of the Polyclinic staff, at the Waldeck Sanitarium. An opening was made in the skull in the temporal region shaped like an inverted U, with the open part hinging on the zygoma. It was impossible to get beyond the foramen ovale, but nothing of the nature of a neoplasm was discovered in that region. The wound was closed, and healed by first intention. The patient was relieved entirely of the pain for a week, but after the drainage tubes were removed and the wound closed, it returned with all the former intensity. At the present time the movements of the eye are decidedly improved from the original condition, whether as the result of the operation, or of the internal treatment, or, as Dr. Newmark suggests, by the shifting of the pressure, it is difficult to determine. The vision, however, has not returned, and the right papilla is showing a gradually increasing atrophy.

On November 13th, when he came to the clinic he complained of a haziness in the left eye. Dr. Martin found a perineuritis developing; the veins were enlarged and the margin of the disc hyperemic and indistinct. The vision was not tested, as patient was in a highly nervous condition over the possibility of losing his sight altogether. Unquestionably the left optic nerve is being impinged upon at the present time. The field of vision has showed no peculiarity. *There is no ear trouble.

Discussion.—Dr. Leo Newmark believed a plausible assumption that there is a tumor in the right middle fossa, and that its presence would account for the implication of the oculo-motor, abducens, trigeminus and optic nerves. In lepto-meningitis there is not such severe pain. Whether the growth is in the bone at the base or in the brain at the base cannot now be told. That the nerves are affected near the middle line is certain.

Dr. Henry L. Wagner presented a case of carcinoma of the left tonsil in a man about sixty years old. He also showed microscopic sections of the growth, and stated that the case is a rare one, since sarcoma is the rule in malignant tonsillar disease.

Dr. Cohn said that it would be important to examine Dr. Wagner's slides under a high power, since carcinoma is very rare in the tonsil.

Dr. Barkan asked Dr. Wagner how carcinoma can be distinguished clinically from sarcoma. Dr. Wagner replied that sarcoma progresses

rapidly, and carcinoma (round-celled) slowly. In undoubtedly malignant growths of the tongue, pharynx and tonsil, mercury temporarily produced an apparently curative effect.

Dr. Kaspar Pischl presented a young girl who had had at intervals since she was six years old attacks of otorrhœa. Fifteen months ago the left ear began to run again, and there were attacks of dizziness. The membrana is intact; whisper heard six feet. On the upper wall of the external canal is an opening one centimeter from the membrana. On inflating, air and muco-pus escape. On account of the amount of hearing he was inclined, in case it became necessary to operate, to do so by way of the antrum.

Dr. Barkan thought it difficult to tell in this case whether or not the attic and ossicles are affected. Dilute muriatic acid might be useful.

The President had seen several similar cases, and believed the only safe procedure in Dr. Pischl's case would be a modified Stacke operation.

Dr. F. B. Eaton presented and demonstrated, by request, his two new forms of tropometer, the double-arc and the reflecting form. (OPHTHALMIC RECORD, September, 1898, and August, 1899.) Careful and patient experiments with different forms of perimeter had shown him that that instrument cannot be either conveniently used or relied upon for the purpose of determining the monocular field of fixation, which is coming into prominence as a regular clinical procedure. He had been able to clear up puzzling cases of paralysis of the ocular muscles where secondary contractions had taken place rendering the diagnosis by false images impossible. In nearly all cases where operations on the muscles are contemplated, a correct knowledge of the actual amplitude of fixation in different directions is almost indispensable.

The President stated that recently in a case of old paralysis of the right inferior rectus where the indications of the false images were contradictory, the use of the double-arc instrument of Dr. Eaton had enabled him to quickly determine that the internus of the other eye was also involved and to prescribe prisms which gave relief.

Dr. A. Barkan presented some of the improved artificial eyes of Prof. Snellen. He doubted whether they would supersede the present form of shell prosthesis.

Dr. Pischl showed some stereoscopic photographs of the temporal bone, by which the anatomical relations in different operations and conditions were rendered clear and lifelike.

OPHTHALMOLOGICAL SOCIETY OF THE UNITED KINGDOM.

THURSDAY, NOVEMBER 9, 1899.

G. Anderson Critchett, M.A., F.R.C.S., Edin., President, in the Chair.

Mr. E. Treacher Collins and Mr. Devereux Marshall read a paper on two cases of *Primary Neoplasm of the Optic Nerve*. They exhibited also four other specimens of this variety of new growth which they had collected. Their first case was that of a boy, aged five years, who had come under the care of one of them at Moorfields. The right eye had become more prominent than its fellow, and although treatment with iodide was tried, no improvement occurred, and it was therefore decided to explore the orbit. While under observation the proptosis had become more marked and the eye more flattened in its antero-posterior diameter, as was proved by the fact that the hypermetropia increased from 4 D. when it was first seen to 9 D. at the time of the operation. The movements of the eyeball were but very slightly limited. When removing the eye it was found that the nerve was very much enlarged; this was divided as far back as the optic foramen. On examination, the growth was seen to be chiefly composed of the very much thickened pial sheath; there was also a great increase in the fibrous tissue of the nerve, and the nerve fibers had almost entirely disappeared, leaving apparently empty spaces. The second case was that of a lady, aged forty-six, whose sight had been failing for nine months. Hemorrhages covered the retina, and the eye was quite blind. Excision was performed in November, 1897, when the optic nerve was found to be much enlarged. As malignant disease was feared, the contents of the orbit were taken away, and the nerve divided at the optic foramen. In this case, as in the first, there was found to be much thickening of the pial sheath, and also of the connective tissue of the nerve. There was at present no recurrence in either of them. The authors fully discussed optic nerve tumors, and drew attention to the numerous and varied names under which reported cases were described. Owing to the rarity of this form of growth, but few observers had been able to examine more than one or two cases, and thus much confusion existed as to their nature. In some of their cases the growth was more fibrous, while in others it was more cellular, but in none did they find any true myxoma-

tous changes. They believed that all their six cases were of essentially the same nature, differing only in detail. They argued that as the tumors had really commenced in the supporting tissue of the nerve, that therefore the term "glioma" was applicable. They strongly disapproved of the compound terms so frequently applied, such as "fibro-sarcoma," and urged that as much of the confusion which had arisen with regard to the nature of optic nerve tumors was due to the nomenclature which had been adopted, they expressed a hope that this might be in a measure cleared up by pathologists recognizing the essential principles observed in all these growths, and as the different appearances were really matters of detail only, they were really far less complicated than the description of published cases would lead one to believe.

Mr. Rockliffe, who had supplied one of the six cases examined by the authors, stated that the health of his patient was greatly impaired before the operation, but improved directly the eye was removed. Although this was six or seven years ago, the patient remained well, with no recurrence. He thought that the sections of the different tumors shown were by no means similar in appearance, and he asked if this could be explained.

Mr. Devereux Marshall, in reply, said he had found no such impairment in health in any of the other cases, and he considered that the growths were not of a highly malignant type. He referred to a case he had brought before the Society a year ago with Mr. Bullar, in which it was certain that the growth extended farther back than the part removed, and yet after several years there was no recurrence. With regard to the differences seen in the section he admitted that at first sight such was the case, but on further examination both he and Mr. Collins were quite convinced that the difference was far more apparent than real.

Mr. John Griffith read a paper on *Iritis: a Sequel to Gonorrhœa*. He was of the opinion that though iritis as a complication of gonorrhœa was universally recognized, it had not received attention as a sequel of that complaint. He gave a brief account of twelve cases that had come under his care. Of the twelve, the greater number had developed iritis seven years or more after the urethritis. Syphilis was excluded in nine, and the three in which that disease had complicated the gonorrhœa, iritis had developed, which he regarded as gonorrhœal, and not syphilitic. In the syphilitic subjects rheumatic troubles had occurred only subsequent to the urethritis. In nine out of the twelve rheumatism had been present, in eight of which no rheumatic attack had shown itself prior to the gonorrhœa. Mr. Griffith considered gonorrhœa on a parallel with syphilis in

the liability to remote complications, and strongly upheld the constitutional nature of the affection. He was sceptical about rheumatic iritis, believing that the iritis and the rheumatism were in many instances dependent upon a previous attack of urethritis. He concluded by quoting a case of recurrent pleurisy, which he attributed to the evil effects of constitutional gonorrhœa.

The President thought that the sequelæ of gonorrhœa were very much underrated, and although he could not go so far as Mr. Griffith, yet he thought the Society was indebted to him for drawing attention to the subject.

Dr. Brailey did not agree with Mr. Griffith as to the gonorrhœal origin of iritis in many cases where it did not come on for many years after the urethritis.

Mr. Treacher Collins had once collected a series of cases of iritis, and in those which were due to gonorrhœa there was frequently a gouty history.

Mr. Lang said that iritis following gonorrhœa was by no means uncommon, and he thought that such cases frequently had the characteristic albuminous exudation in the anterior chamber, at times looking like a dislocated lens.

Mr. Griffith briefly replied.

The following card specimens were shown:—Mr. R. D. Batten: Disseminated White Patches in the Chloroid.—Mr. Work Dodd: (1) Case of Bifurcation of the Retinal Vein. (2) Intraocular New Growth. (3) Opaque Nerve Fibres.—Mr. Vernon Cargill: Tuberculosis of the Lachrymal Sac with Other Manifestations of Tuberculosis.—Mr. Holmes Spicer: Case of Spring Catarrh.

SECTION ON OPHTHALMOLOGY.

COLLEGE OF PHYSICIANS OF PHILADELPHIA.

Meeting November 21, 1899. Dr. George C. Harlan, chairman, in the chair.

Dr. W. F. Norris presented a case of *Chancre of the Lower Eyelid*. M. S., æt. 45, presented himself at the dispensary of the hospital of the University of Pennsylvania on October 20, 1899. The patient states that the disease started two days before as a little white blister about one-fourth inch from the external canthus of his right eye. When first seen there was marked swelling of the lids, with an indurated lump in the margin of

the lower lid, near the external canthus, about one cm. in diameter, yellowish in color. The bulbar conjunctiva was markedly chemosed, and there was a slight conjunctival secretion. The patient had severe nocturnal pain in the forehead and temple. There are no posterior synechiæ or other evidences of inflammation of the iris. He was ordered a solution of atropia and ten grains of potassium iodid, the dose to be increased two grains daily. Four days later the face, lids, and glands of the neck were much indurated and swollen; the yellow lump on the lower lid had broken down, leaving an irregular open sore and ectropion of the lower lid. The severe symptoms gradually subsided, and on the 27th there was no pain, and the swelling of the lids and the chemosis had decreased. The upper margin of the cornea was the seat of several small superficial ulcers. Holocain was applied to the ulcers, and the sore on the lid was touched with 5 per cent solution of protargol, later with mercuric bichlorid 1:500. On November 1st there was an indurated sore with a sharp-cut excavation. The two water-color drawings by Miss Washington give a truer reproduction of the above-described state of affairs than any word-painting. The patient has progressed steadily, and now, November 21st, the inflammation has subsided, the ulcer is nearly filled, and there are three minute elevations on the margin of the lid just beyond the outer edge of the ulcer. There is no history of infection to be obtained, no lesion or scar on the penis, and no symptoms of secondary or tertiary syphilis. The patient attributes the lesion to traumatism, and says that some days before the above symptoms appeared the lid was penetrated by a splinter of glass that was removed by a fellow-workman.

Discussion.—Dr. L. A. Duhring stated that there were several interesting points in the diagnosis. First, the period of incubation was extremely short, supposing it to be the primary lesion of syphilis—in fact, there is no case on record where such a short time elapsed from the reception of the wound to the manifestation of the disease; second, a high grade of inflammatory reaction, such as was seen in this case, is extremely rare. This man complained of pain, and the conjunctiva was both chemosed and ecchymosed, both of which signs are not in accord with the usual course of primary sores. He considers that the word “chancre” is frequently misused. There are several lesions which are not properly chancres. An ulcer in order to be designated “chancre” should be surrounded with much induration, and should be followed by the clinical symptoms of syphilis. In answer to a query of Dr. William Thomson whether this could have been a chancroid, Dr. Duhring replied that he would expect a more destructive ulceration, a more rapid course, and

should not look for ecchymosis or edema. Dr. Thomson related the history of a case of supposed sty which was freely opened, but which later developed into a syphilitic sore. The patient was infected by contact with pus on clothing that she was washing. The ulceration was extensive, and was followed by enlargement of the parotid glands. Under specific treatment she recovered, without a subsequent history of eruption or other secondary symptoms. Dr. B. A. Randall mentioned the case of a lady who was infected by a hypodermic needle inserted into the gum. History and culture showed streptococcus. The ulceration involved the palate, and was typical of syphilitic ulceration and caries, but was distinctly not syphilis. This case demonstrates that anomalous lesions are not always syphilitic, although they appear to be.

Dr. G. Oram Ring presented a patient with a large and rapidly growing *Sarcoma of the Orbit*, probably originated by a blow. The patient, a boy of 18, had moderate pain and swelling. One week later he was admitted to the hospital with exophthalmos, intense chemosis, marked swelling of the lids, and orbital tissues; temperature normal. The chemosis and exophthalmos rapidly increased; the cornea became ulcerated, and iris prolapsed. At this time the diagnosis was retro-ocular hemorrhage. After enucleation, microscopic examination of a portion of the newly formed orbital tissue pointed strongly to a malignant growth, consisting chiefly of large, round, and polyhedral cells, with some spindle cells. Blood-counts showed the absence of any pronounced degree of leucocytosis, the average count being 9,000. The tumor spread rapidly, invading the frontal bone, the superior maxillary bone, the maxillary sinus, and projected forward several inches beyond the plane of the orbit. The anterior surface was ulcerated and bleeding. The greater portion of the mass developed within the past two weeks. The case was considered inoperable.

Discussion.—Dr. de Schweinitz described four cases of sarcoma of the orbit. The first commenced in the choroid. The eyeball was enucleated in the glaucomatous stage five years after the original discovery; recurrence occurred in five months, when the orbit was exenterated. The second commenced in the orbit and extended to the antrum; the third was metastatic from sarcoma of the abdominal regions; the fourth was enucleated for choroidal tumor, and later the orbit exenterated. The fourth case was a large spindle-celled pigmented sarcoma. Dr. Friebeis mentioned a patient who was the subject of disseminated sarcoma, which made its first appearance in the eyeball. Dr. Randall described a sarcoma of the neck which followed direct injury. The tumor appeared in one

month; it was removed and recurred, three operations being done. The growth extended from the eye over the side of the face to the ear and down as far as the clavicle. It was then regarded as inoperable, and treatment by injections of the serum of erysipelas was instituted. The patient improved daily and was able to return to work, and in six months showed no sign of local or metastatic growth. He recommended this treatment to be tried in Dr. Ring's case. Dr. Duhring considered that the tumor in this instance sprang from the blow. The rapid growth is not incompatible with the history and appearance in young persons. He called attention to the anemia of the skin, which is often seen in rapidly spreading sarcomata. In all cases the microscope to determine both the kind of tumor and the condition of the blood ought to be employed at once.

Dr. Charles A. Oliver gave a clinical and histologic study of a case of *Melanosarcoma of the Chorioid*. The patient, a 64-year-old man, accidentally discovered twenty-six years previously that he was blind in the left eye. With the exception of two slight attacks of disturbance, the eye remained quiet until four months before being seen, when it began to increase in size, and became intermittingly painful. A nodular mass, which was highly vascular and densely pigmented, protruded between the eyelids. The entire contents of the orbital cavity were removed. They were found to consist of a melanotic sarcoma of the chorioid which had broken through an atrophic globe both anteriorly as an ulcerated fungus, and posteriorly filling the orbit and destroying the orbital contents. The mass was filled in many places with blood-extravasations, and was packed with degenerated neoplastic cells. In addition, there was a large ossification area in association with osseous changes that were seemingly connected with the tumor itself. The patient apparently enjoyed robust health up to the time of his death from a railway accident three years later, the growth never recurring nor extending, and there never being any evidences of metastasis.

Dr. de Schweinitz related the history of a case of *Gumma of the Iris and Ciliary Body*, and demonstrated the specimens from the enucleated eyeball. The growth occupied the area between the anterior end of the ciliary body, and included the iris to its pupillary margin. It presented the usual histologic character of gumma, and contained in its center a cyst which had developed from one of the larger ciliary processes. There was adhesive inflammation of the iris periphery on one side, occluding the angle of the anterior chamber, while the growth blocked the angle on the other side. This occasioned glaucoma, on account of which the eye

was enucleated, sight having been destroyed, and the usual medicinal measures having failed to cause absorption of the growth.

Discussion.—Dr. C. A. Oliver related a case of recovery from gumma of the iris and ciliary body in a 37-year-old syphilitic whose vision had been reduced to $\frac{1}{80}$ principally by gummous and pigment infiltrations into the media. Vision was brought to almost normal on three occasions by the employment of heroic doses of mercury by inunction. He considered the case to be not only of interest in regard to its unusually favorable termination, but by reason of the fact that during the early stages of the disease it required both spheric and cylindric concave lenses to improve vision, whereas the true state of refraction was hypermetropic.

Dr. Randall spoke of a case in which treatment by mercury and iodid of potassium was of no service, but Donovan's solution was extremely valuable.

Dr. Burton K. Chance reported (by invitation) *The Ocular Findings in the Study of Twenty-three Cases of Epidemic Cerebrospinal Meningitis*. In a systematic study of the eyes of twenty-three persons suffering from epidemic meningitis the author noted among the early symptoms lessening of central vision, photophobia, burning and itching of the lids, with catarrh. In one case there had been diplopia; in another deep orbital pains, followed by ptosis and facial paralysis of the left side. The visual testings yielded normal acuity in several cases despite the intense congestion of the fundus; in others there was marked diminution when the optic disks showed decided neuritis. Disturbances of the conjunctiva were seen to be localized and unilateral, and doubtless were due to contamination from outside sources. Abnormal convergence of both eyes was seen in two cases. There was more and greater variation in the size of the pupillary areas than would ordinarily be noted among the same number of healthy individuals. No case presented inflammation of cornea or iris or alteration in the transparency of the lens, nor were gross acute changes of the chorioid or retina observed. The optic disks presented the greatest changes. Here was seen early progressive neuritis, marked by hyperemia, edema, and projection forward of the disk, with constriction of the afferent and efferent vessels.

HOWARD F. HANSELL,

Clerk of Section.

CHICAGO OPHTHALMOLOGICAL AND OTOLOGICAL SOCIETY.

A regular meeting was held December 12, 1899, and, in the absence of the President, Dr. C. D. Wescott occupied the chair.

Dr. F. C. Hotz presented the following case of *Primary Tuberculosis of the Conjunctiva* occurring in a child five years of age: Father and mother living and in good health. No tubercular nor specific history obtainable. The child had scarlet fever when three years of age, and had diphtheria in May. About seven weeks ago the mother noticed in the lower right quadrant of the right eye of the bulbar conjunctiva a slight injection, which gradually increased until the entire bulbar conjunctiva was involved. Six weeks ago, a week after the beginning of the trouble, there was first noticed a swelling of the preauricular gland, and later the glands at the angle of the jaw on the side corresponding to that of the affected eye became swollen. When seen, the whole right side of the face was considerably swollen, the swelling due chiefly to an enlargement of the submaxillary glands and preauricular gland. The lids showed slight edema, and on everting the lower lid the conjunctiva looked granular, and of a deep red color. The ocular conjunctiva was swollen all around the cornea, particularly the lower right quadrant, which showed decided elevation, due to dense, lardaceous infiltration, and on the top of this elevation there was an irregular yellowish patch, evidently due to ulceration, with a rough surface, as if little holes had been pricked into it. Upward and downward, following the margin of the cornea and at a little distance from it, were noticed a number of yellow punctiform infiltrates, and there was also some mucous secretion. Since the child has been in the hospital the swelling of the cheek has decreased materially, and the enlargement of the submaxillary gland has decreased so much that now only small nodules are felt. The preauricular gland, first noticeable by its enlargement, has been reduced in size to a great extent. The condition of the ocular conjunctiva has not changed materially.

The tubercle bacillus was found in each of the three bacteriological examinations made. Cultures have also been made from the scrapings, but have not yet developed far enough to furnish any information.

The treatment has consisted in boric irrigations every morning and

evening, and the application of iodoform powder upon the conjunctival ulcer. It might possibly be of advantage in such a case, where the tubercular affection is still so localized, only beginning to extend, as shown by the lymphatic disturbance, to subject this patient to the tuberculin treatment.

Dr. H. W. Woodruff, of Joliet, Ill., showed a case of *sclero-keratitis* in a young lady of twenty-nine. She had hip-joint disease when two or three years old. Since that time her general health has always been good with the exception of some rheumatic pains in the joints. A sister had hip-joint disease at eleven. She has two brothers and two other sisters, all in good health. Her father died at the age of sixty-eight of Bright's disease, and her mother died of typhoid fever at forty-eight.

One year ago last October a slight inflammation began in the right eye, gradually getting worse, until last December, since which time frequent relapses have occurred, the longest period of rest being five weeks. There is general diffuse congestion of the sclera, more marked about the ciliary zone with irregular triangular deposits in the cornea, with base in the sclera and apex toward the center of the cornea. No scleral nodules. Magnifying glass shows the cornea to be quite vascular, some blood vessels extending beyond the center of the cornea. She has been treated with potassium iodide, in small and large doses, salicylates, salines, diet, etc. Locally, with atropine and hot applications. Atropine had to be discontinued at one time on account of atropine poisoning, when atropine ointment was substituted. There is only a slight adhesion of the iris to the lens. Pain is not very severe, and is controlled by hot applications. The affection in this case is probably due to rheumatism, although there is no definite rheumatic trouble, simply a history of having pains. There is no tubercular history excepting the existence of hip-joint disease during childhood. This has not disturbed her since childhood.

Dr. Albert B. Hale showed a case of *Retinitis Pigmentosa* with typical fields of vision.

Dr. Thomas A. Woodruff presented for Dr. Casey A. Wood a case of *Symblepharon of left upper lid*. Joseph M., 12 years of age, while shooting off a cannon last Fourth of July, a can of powder exploded and the flame burst into his face, severely burning the left eye. There was a large upper symblepharon on the left eye, about seven-eighths of the cornea being adherent to the palpebral conjunctiva, with granulation tissue at the points of union externally, altogether involving an adherence of one-half of the whole upper palpebral surface with the eyeball. After treatment of the swollen lid and granular conjunctiva for three weeks, the palpebral

conjunctiva not destroyed by the accident was dissected free and the lower border stitched to the sulcus above. Contrary to expectation, there was no readhesion, the patient's vision has improved, the eye is clearing up, and now, one month after the operation, improvement is marked. The question arises, what further operation may be done, if any? If so, whether a Thiersch graft or a mucous membrane transplantation would be preferable.

Discussion.—Dr. F. C. Hotz: The result is certainly very good, as it has liberated the lid from the cornea, giving the eye good lateral motion. The lid shows a certain degree of ptosis. When the lid is everted its upper border is in close adhesion with the eyeball near the corneal margin, and unless it is dissected back freely and the defect covered with a graft on the eyeball, it will be impossible to open the eye fully, and in the future, if the patient has any annoyance from this close connection between the upper lid and the eyeball, it would be perfectly proper to perform a second operation in that direction to dissect the lid farther back and cover the wound on the eyeball with a lip graft.

Dr. William E. Gamble presented a patient with *Keratitis Dendritica*. At no time has he had severe pain. He complains that at about 2 a. m. in each day there is a profuse flow of tears which lasts for a considerable time, after which his eye feels better. As to the appearance of the eye, there was some pericorneal injection and a superficial keratitis. There is no history of foreign body or other injury. With exception of a sore throat last June, with a temperature one day reaching 103° F., he has had no illness for several years. He has not had any herpetic eruption on face or other parts of body, nor has he had any catarrhal troubles with mucous membranes.

The etiology of this case is not clear. It does not come under the class keratitis herpes corneæ of Horner, as the history shows no herpetic eruption about face nor trouble with respiratory tract. The case was not seen early enough to determine whether vesicles were present at the outset. Kipp, in 1880, described a series of cases of superficial keratitis complicating malaria in which the ulceration often assumed a serpiginous form. He called these cases malarial keratitis.

Dr. Ellet, of Memphis, this year has described ten cases of keratitis dendritica, in which an examination of the blood was made. Plasmodium malarix were present in nine of the cases.

Hansen-Grut, in 1884, described a series of cases that had come under his observation as being superficial chronic keratitis, with a tendency to become serpiginous, that was not identical to Horner's type, neither did

he commit himself on the etiology of the cases he described as keratitis dendritica. The blood of this case was carefully examined for plasmodium malarie by Dr. E. L. Brown, assistant pathologist Illinois Charitable Eye and Ear Infirmary, with negative result. Quinia has no appreciable effect on the progress of the disease. In the absence of more definite knowledge this case might suggest the keratitis dendritica idiopathica and thereby aid in the classification of these obscure conditions.

Discussion.—Dr. F. C. Hotz has seen a number of these so-called dendritic cases in years gone by, and the majority of them were of a malarial nature. In several instances the treatment had been conducted on general principles of keratitis, with atropine, etc., without benefit, or without making any impression upon the inflammation. The inflammation, however, quickly subsided as soon as quinine was given. In one case the patient had periodical attacks at regular intervals; he felt very comfortable, and the eye exhibited only a slight indication of inflammation on one day; the next day all the symptoms increased, with violent pain, lasting from 10 o'clock in the morning until 2 o'clock in the afternoon. In this case quinine broke up the attacks promptly, and in a few days all signs of inflammation had disappeared. It is claimed that these cases are all of a malarial origin; and there are other factors which may bring about a similar eruption, but Dr. Hotz thinks that this typical linear ulceration, creeping over the cornea from the margin, and branching out with fine linear offshoots, is, in the majority of cases, of malarial origin.

Dr. F. C. Hotz reported *Two Cases of a Peculiar Visual Perversion*. Reported in full on page 12.

Discussion.—Dr. Henry Gradle cannot talk strictly pertinently to the subject, as he has never seen personally any case like the one of Dr. Hotz. Dr. Hotz's cases, however, remind him of the extensive neurological literature on reversed or mirror writing. About twenty years ago the attention of neurologists was called to that subject in connection with attempts at writing with the left hand by patients with right-sided palsy. It was noticed then that many of these patients in attempting to write would reverse the letters, and in following up the subject it was found that this, too, was not uncommon among the insane, even where there was no motor palsy of any kind. Furthermore, it was learned that children, in first learning to write, occasionally wrote in the same way. As far as he was aware, this subject has not received much attention recently. In this connection it would be interesting to know how the first girl wrote. The quick recovery of the first girl would lead us to refer the trouble to some central disturbance of a functional character, coming under the

head of what is called with more or less justice hysteria. Of course, hysteria is simply a term, and does not involve any accurate knowledge. It simply means the disturbance of some central process of such a transient character that it can return to the normal on very slight provocation, although it may last almost indefinitely when no interference occurs which returns the innervation to its proper channels.

Dr. Albert B. Hale: If one might venture an opinion, one could say that this is probably an obliteration of the acquired experiences of the human mind, and a primary interpretation of direct optical phenomena as we are supposed to get them from our visual apparatus.

Some three years ago Dr. Hale informally discussed the strange conditions under which his own child was learning his alphabet. He wrote A, U and P in this way: ∇ , Ω , \mathcal{A} . For two or three weeks he showed this inversion of type, but soon got over it, and has manifested no symptoms of inversion since.

In the *Annals of Ophthalmology* years ago there appeared an article by a man in California who submitted himself to severe tests of patience by arranging a contrivance in which he produced in the air an inverted image, and then sat with his head in a box for a week or so until he accustomed himself to the inverted image. He claimed that he interpreted the outer world about as well as a person does with experiences of his own and races of past life.

Dr. Hale does not claim this is an exact scientific interpretation. Even though fanciful, it is quite probable, we know that the connection between the optical condition of the retina and the condition of the brain when interpreting such phenomena is still unexplained.

If, as we certainly know, there are, in certain abnormal physical states, lapses of experience, and recession to the original and primitive conditions, we may suppose some such analogous process here, with the result of a temporary visual inversion.

Dr. Thomas A. Woodruff referred to a three-year-old child who, in looking at picture-books, always preferred to have them upside down. This was more noticeable when the child was two years of age than in the last year. If given a picture-book or single picture right side up, she would always turn it upside down, and seemed to see the pictures better in that position. The child is fond of looking at pictures of babies, and often while turning over the advertising pages of magazines that contain advertisements for baby foods, with pictures of infants, she invariably holds the magazine inverted.

Dr. C. D. Wescott: That this condition is sometimes a permanent one

is illustrated by a case he observed a number of years ago. He saw a man writing one day the English language in such a way that he could not make it out. He explained that he wrote upside down, and when the copy was reversed it looked and read just as English usually is written. He was a man of middle age, and still continued to write the inverted letters.

Dr. Wescott can confirm what Dr. Gradle has said with reference to the reverse writing of the insane. During his experience as assistant physician at Kankakee these observations were not infrequent.

Dr. A. E. Bulson, of Fort Wayne, Ind.: A case similar to the one reported came under his observation a few weeks ago. A salesman, in taking an order, wrote with the paper turned upside down, the writing from his position being upside down. He also noticed that in referring to his catalogue he invariably read with bottom side up. As agents frequently do this in order to have the print so that the customer can read it, he thought nothing of it until he saw him write the order. Upon inquiry he told me that he had written this way ever since he was a child, and was unable to write in the ordinary way.

Dr. Albert B. Hale: In reference to the remarks just made by Dr. Bulson, this appears to be a trick of many traveling salesmen. They like to have the purchaser read the memorandum at once, and therefore write upside down. It is an acquired trick, making figures, initials, etc. This would not apply, however, to such a case as Dr. Bulson cites.

SECTION ON OPHTHALMOLOGY OF THE AMERICAN MEDICAL ASSOCIATION.

The preliminary program of the Section on Ophthalmology of the American Medical Association, which meets in Atlantic City, New Jersey, June 5 to 8, 1900.

TUESDAY, AFTERNOON SESSION.

Address of Chairman-----H. V. Würdemann, Milwaukee
Treatment of Conical Cornea.

1. Optical Therapeutics-----Swan M. Burnett, Washington
 2. Operations -----Robert Sattler, Cincinnati
- Discussion opened by Herman Knapp, New York; F. C. Hotz,
Chicago; Samuel D. Risley, Philadelphia.
- Volunteer papers.

WEDNESDAY, MORNING SESSION.

Exhibition of Specimens and New Instruments.

1. A Double Trial Lens to Balance the Eyes in Presbyopia
Mark D. Stevenson, Akron, Ohio
2. Other Demonstrations.
Volunteer papers.

WEDNESDAY, AFTERNOON SESSION.

The Relation of Ocular Diseases and Visual Defects to Vocations.

1. What Amount of Visual Defect Should Disqualify in Railroad and Steamship Service-----Frank Allport, Chicago
 2. Estimation of the Amount of Injury to the Business Capacity of the Individual from Partial or Complete Loss of Vision-----Adolf Alt, St. Louis
- Discussion opened by Wm. Thomson, Philadelphia; C. H. Williams, Boston.
Volunteer papers.

THURSDAY, MORNING SESSION.

Exhibition of Specimens and New Instruments.

1. Demonstrations of Sections of an Unusual Intra-Ocular Growth-----Wilbur P. Marple, New York
2. Other Demonstrations and Instruments.
Volunteer papers.

THURSDAY, AFTERNOON SESSION.

The Rational Use and Limitations of Therapeutic Measures Intended to Promote the Absorption of Exudates Within the Eyeball.

1. Medical Measures-----Randolph Brunson, Hot Springs, Ark.
 2. Local Therapeutics-----M. Urbine Troncoso, Mexico City
 3. The Present Status and Value of Massage of the Eyeball, with the Consideration What Diseases of the Eye May Be Favorably Influenced by This Therapeutic Measure, and What Are the Best Means of Its Application-----
Casey A. Wood, Chicago
- Discussion opened by George M. Gould, Philadelphia; J. Santos Fernandez, Havana, Cuba; Robert L. Randolph, Baltimore.
Volunteer papers.

FRIDAY, MORNING SESSION.

Exhibition of Specimens and New Instruments.

The Treatment of Immature Cataract, with Special Reference
to the Rate of Development and Such Measures as May
Check It-----G. E. de Schweinitz, Philadelphia
Discussion opened by John E. Weeks, New York; Abner W. Calhoun
Atlanta.

FRIDAY, AFTERNOON SESSION.

Volunteer papers.

Volunteer Papers Accepted to Date.

1. Secondary Operations on Capsular Membranes-----
Peter A. Callan, New York
2. Lessons Learned from a First Series of One Hundred
Cataract Extractions -----F. T. Rogers, Providence
3. Glioma of the Retina-----G. A. Sulzer, Portsmouth
4. Hemorrhagic Glaucoma - -----W. C. Posey, Philadelphia
5. Will Relate to Variations in the Size of the Pupil-----
Lucien Howe, Buffalo
6. Paresis with Irregular Tabes -----G. Oram Ring, Philadelphia
7. The Effects Upon the Eye of Flashes of Electric Light---
Dunbar Roy, Atlanta
3. Keratitis-Bullosa, with Report of a Case-----
E. O. Sisson, Keokuk, Iowa

The officers of the Section on Ophthalmology of the American Medical Association request all ophthalmologists who intend contributing to the scientific program of the Section, by papers, exhibition of instruments or specimens, and all who propose attendance upon the meeting, to write of their intentions at once, in order that places upon the program and hotel accommodations may be reserved, and that an estimate of the probable attendance may be made at an early date. In regard to the program, address the secretary, Dr. Chas. F. Clark, 188 E. State Street, Columbus, Ohio. For reservation of rooms apply to the chairman of the committee of arrangements, S. Philips Marvel, Atlantic City, N. J.

NEWS ITEMS.

*Personals and items of interest should be sent to
Dr. Frank Allport, 92 State St., Chicago.*

DR. D. C. BRYANT, of Omaha, is spending the year in Europe.

DR. FRANK RAEMER has moved to Minneapolis, Minn., to practice his specialty.

DR. JOHN H. MARTINDALE and family, of Minneapolis, Minn., will spend the winter in California.

DRS. BLACK, Coover and Bain have been appointed ophthalmologists to the new Jewish Hospital in Denver.

DR. SHADLE, of St. Paul, has gone with his family to Europe. He will spend most of the winter in Egypt.

SIGNOR CRISPI, of Italy, was operated upon at Naples recently for cataract. The final operation will be performed later.

THE firm of Fulton & McDavitt, of St. Paul, has been dissolved, and both Drs. Fulton and McDavitt have opened separate offices.

DR. BISHOPP, recently of the Manhattan Eye and Ear Hospital, of New York City, located in Minneapolis, Minn., January 1st.

DR. JOHN M. FOSTER, of Denver, has just returned from a trip to his former home in the South, where, he informs us, he is made young again by balmy breezes.

THE *Anales de Oftalmologia* has added to its editorial staff Dr. Demichen, of Montevideo, who was formerly chief of clinic at de Wecker's Clinic in Paris.

DURING the past month the faculty, with the students of the senior class of Jefferson Medical College, were given a reception at the Art Club, by Dr. George E. de Schweinitz.

AT the last monthly meeting of the Cincinnati Society of Natural History, December 5, Dr. C. R. Holmes delivered an illustrated lecture on "The Eye, Its Evolution and Functions."

THE English translation of Bandry's work on "Injuries of the Eye in Their Medico-Legal Relation," which is being edited by Dr. Charles A. Oliver, of Philadelphia, has passed through the press, and is being bound for publication within a very short time.

SLATES CAUSE SHORTSIGHTEDNESS.—It is the opinion of a German oculist that the use of ordinary slates by school children tends to produce shortsightedness. As a substitute he recommends pen and ink, or an artificial white slate with black pencil. The latter have been introduced in some of the German schools.

DR. KENNETH SCOTT has resigned his position as oculist to the Khedival Hospitals in Cairo, Egypt, and has taken up his residence in London, where he may be consulted at 30 Harley Street, Cavendish Square, London W. With the well-deserved reputation Dr. Scott has earned in Egypt, he will undoubtedly take an important part in the ophthalmological world of the English capital. Dr. Scott was married last July.

BLIND LEADS BLIND.—Evanston, Ill., citizens were treated to the novel sight of the blind leading the blind along the streets of the suburb to-day. Rev. George Schorb, the blind lecturer and author, living at 2035 Pratt Court, was entertaining his friend Alfred Cady, also blind, who lives at Marengo, Ill. The latter had not been in Evanston for many years, and Mr. Schorb, who is noted for his ability to find his way unaided through the streets of Chicago and Evanston, showed him around the town.

A "HANDBOOK of Optics for Students of Ophthalmology," by Prof. W. N. Suter, of the National University, Washington, D. C., has recently been issued by the Macmillan Company. It is a book of two hundred pages that sells for a dollar, which will prove a valuable addition to the library

of any ophthalmologist. Its mathematical demonstrations require only a mastery of simple algebraic equations and the elementary truths of geometry. This will make it more widely useful than if it required some acquaintance with calculus and higher analytical geometry.

MAKUEN briefly reports a case in the *Philadelphia Medical Journal*, December 16, 1899, of a boy who had difficulty of speech, and inability to recognize letters and words to a certain extent. He was quick at arithmetic, but very much behind in other studies, and it was difficult for him to talk with his companions. The trouble seemed to arise from an attack of meningitis at the age of 14 months, and he thinks that probably there may have been damage to the visual word center of the brain at that time. Two somewhat similar cases have been reported, all in boys. Under special training improvement was rapid.

THE Le Maire Optical Company, with a capital of one million dollars, will file articles of incorporation at Albany in a few days, and will establish two factories in the United States, which, it is expected, will give employment to five thousand men. One establishment will be at Franklin Park, Ill., where a tract of land has been leased, and the second at a point in Connecticut. Machinery valued at five hundred thousand dollars will be imported for the plants. The Le Maire Company, which has factories in England and France, is entering the United States as a manufacturer because of the heavy duty on its goods, ranging from sixty to sixty-five per cent. The glass for the lenses will be imported, and ground and mounted here.

DR. ROHMER, of Nancy, in *L'Abeille Médicale*, explains the physiological function of the glands of the eye as follows: The acinous glands of the conjunctiva are sufficient ordinarily to lubricate the eye, and to maintain the moisture necessary for the functioning of the anterior membranes of the ball—the transparency of the cornea, and the protection and defense of both cornea and conjunctiva. When a reflex irritation, transient, or even longer, occurs, of a psychical nature, e.g., emotion, or a physical nature, e.g., a foreign body, bright light, etc., the orbital gland secretes abundantly, and a flow of tears is established. In a word, the conjunctival glands are in a constant state of function, while the orbito-palpebral gland comes into play only on exceptional occasions, but which all the same may be relied upon to aid its function.

PHILADELPHIA MEDICAL CLUB.—The members of the club have decided to make application for a charter, and have their own clubhouse. They now number about five hundred. In the application for the charter the objects of the club will be stated to be to encourage among its members social intercourse and a free discussion of matters affecting physicians, elevating the standard of medical ethics, aiding in all movements tending to increased professional skill and efficiency in the treatment of disease, and the maintenance of a clubhouse and library for the use of the members. The officers recently elected were: President, James M. Anders; vice-presidents, Charles W. Burr and G. E. de Schweinitz; secretary, Guy Hinsdale; treasurer, John H. Locke.

A MOST extraordinary game of football was played at Columbus, Mo., to-day. The teams engaged were the Night Owls and the second eleven of the Columbia High School. The Night Owls won by the wonderful score of 96 to 0.

The victory was largely due to the wonderful work of their captain, "Rooster" Smith, who played at center. Smith is stone blind. He never saw a football in his life, but he plays a terrific game. In the play to-day the opposing line was smashed to pieces by the blind captain of the Owls. He seems to play by instinct, and no one watching his work would think that he was blind.

His correct name is George Smith, formerly an inmate of a St. Louis blind school.

IN THE November issue of the *Quarterly Medical Journal* appears the following editorial note:

"We feel sure that the readers of the *Quarterly Medical Journal* will learn with regret that, in consequence of the pressure of other engagements, Mr. Simeon Snell has felt himself obliged to discontinue the editorship. The *Journal*, fortunately, will still have the benefit of Mr. Snell's advice and assistance, and he will, as heretofore, direct the department of ophthalmology. It is well that it should be placed on record that it was largely owing to Mr. Snell that the *Journal* was initiated, and it is to his organizing ability and unremitting attention that the development and continued success of the *Journal* are in great measure due.

"With this number the date of publication of the *Journal* has been altered, and it will in future be issued in the months of November, February, May and August.

"The department for abstracting has been reorganized and extended,

and it is hoped that this effort to present a more complete résumé of current medical literature will meet with the approbation of our readers."

POST-HÆMORRHAGIC BLINDNESS.—Theobald (*Johns Hopkins Hospital Bulletin*, May; *International Medical Magazine*, September) reports a case of atrophy of both optic nerves following severe hæmorrhage of the stomach in a man of 57 years. After an inquiry into the literature of the subject, and a careful consideration of the case under his observation, he concludes:

1. That the weight of evidence afforded by the ophthalmoscope points to thrombosis of the central retinal artery as the usual cause of blindness occurring in post-hæmorrhagic anæmia.
2. That the resistance offered to the already-enfeebled blood-current in the central retinal artery by the intraocular tension is an important ætiologic factor in determining this result.
3. That in exceptional instances the ophthalmoscope indicates that thrombosis occurs not in the artery, but in the central retinal vein.
4. That, in other exceptional instances, it may be that the loss of sight and the ophthalmoscopic changes which accompany it are the result of a hæmorrhagic or serous effusion into the optic nerve or its sheath (Samelsohn). And here, again, the obstruction and damming back of the blood-current in the central retinal artery by the intraocular tension probably have much to do with bringing about the result.

SURGICAL TREATMENT OF EXOPHTHALMIC GOITRE.—While exophthalmic goitre is not a fatal disease, except in rare cases of acute onset and fulminating course, it is sometimes most protracted in duration, and it may prove a most troublesome condition. The most successful general treatment consists in the administration of remedies like strophanthus and the bromids, in conjunction with extra rest, a quiet mode of life, and a milk diet. Thyroid extract does harm rather than good, and thymus and splenic extracts, which have also been recommended, are not to be depended upon. When medicinal measures have failed, or when the symptoms become alarming by reason of pressure exerted by the enlarged gland, of excessive tachycardia, of diarrhea, or of asthenia, surgical treatment may be resorted to. Various operations have been suggested, and the results, as given by Rehn (*Berliner Klin. Woch.*, October 15, 1899. p. 929) at a recent meeting of the Society of German Naturalists and Physicians at Munich, show that among 177 cases, in which the resection of the goitre was practiced, recovery ensued in 57.6 per cent, improvement in 26.5 per cent, death in 13.6 per cent, and failure in 2.3 per cent. Of thirty-two cases in which resection of the sympathetic nerve was practiced,

recovery ensued in 28.1 per cent, improvement in 50 per cent, failure in 12.5 per cent, and death in 9.3 per cent. Of fourteen cases in which ligation of the thyroid arteries was practiced, recovery ensued in 2.4 per cent, improvement in 50 per cent, and death in 28.6 per cent. Of a total of 319 cases, operation was followed by recovery in 51.8 per cent, by improvement in 37.9 per cent, by death in 13.1 per cent, and by failure in 4.1 per cent.

THE TREATMENT OF OPHTHALMIA NEONATORUM.—The interest which is associated with the purulent ophthalmia of infants in the minds of most practitioners is not likely soon to die out. It is true that its cause and effects, as well as the principles of its treatment, are generally well understood; nevertheless, the subject still possesses in its clinical aspect something even of the attraction of novelty. The reason for this is, no doubt, to be found in the fact that method in management and the personal quality which develops this have much to do with the course and issue of the disease. It is mainly this fact that impresses the reader of a paper published by M. Kalt in the *Journal de Clinique et de Therapeutique Infantiles* of April 27th. The writer believes in the well-established reputation of nitrate of silver as a local remedy, while he regards with no favor the use of mercurial solutions. What is of at least equal importance, he perceives the advantage of soothing applications such as the compress of boric water and of avoiding superfluous manipulation in applying the caustic. The strength of this latter varies from 1 to 3 per cent of distilled water. It is applied by M. Kalt on cotton-wool to the everted eyelids, but frequently also by means of a drop-tube. The use of the stronger solutions is followed, as usual, by washing with 5 per cent salt solution. Instillation is a method less practiced in purulent ophthalmia than it deserves to be. It implies, of course, the use of weak lotions only, and careful regulation of the frequency with which they are used, but it is of much service in the less advanced stages of the disease without corneal abrasion, even where there is considerable purulent discharge. It possesses, moreover, the advantage of obviating much manual interference with a tender and inflamed organ, and it may be employed by a mother or nurse under medical supervision. Irrigation with very weak permanganate of potash or lime water solution is freely employed by M. Kalt, who goes further in this direction than most practitioners would care to follow him, bathing the affected conjunctiva by means of a special apparatus with three-quarters of a litre at a time. In this part of his treatment he certainly errs, in our opinion, on the side of thoroughness.—*From an editorial in the London Lancet.*

THE OPHTHALMIC RECORD

*A MONTHLY REVIEW OF THE PROGRESS OF
OPHTHALMOLOGY.*

VOLUME IX.

CHICAGO, FEBRUARY, 1900.

No. 2. NEW SERIES.

ORIGINAL ARTICLES.

PROLAPSE OF THE IRIS AFTER SIMPLE CATARACT EXTRACTION.*

BY GEORGE C. HARLAN, M.D.

Prolapse of the iris, as Knapp has truly said, is the *bête noir* of simple extraction—perhaps the one accident that prevents this operation from being almost universally adopted as the usual procedure in cataract extraction.

After an extensive discussion, which verges on the monotonous, there is still much difference of opinion as to its frequency, its gravity, and its treatment; which must be my excuse for referring briefly to this much-worn subject.

As to its frequency, some operators say that they rarely meet with it, though it undoubtedly occurs with more or less frequency in the experience of all who perform the operation in a large number of cases. Knapp reports twelve prolapses in his first hundred operations, six in the second and eight in the third. I had recently been congratulating myself, perhaps with something of the pride that goeth before a fall, that I had not had a decided prolapse for many months, when of the first five cases in which I operated this fall there was prolapse in three.

* Read before the ophthalmological section of the College of Physicians of Philadelphia. Discussion will be found on page 93.

As to the gravity of the accident, some authors consider it a source of infection, particularly when the hernia is abscised, while others look upon it with much less dread. An incarceration of the periphery of the iris in the wound, or much less, a simple adhesion, is not usually a serious matter, but generally results merely in a dislocation or distortion of the pupil; but it must be admitted that an extensive bulging of the iris through the wound is very demoralizing to the surgeon, and the question, What will he do with it? is a grave one.

Parinaud has maintained that tardy closure of the wound prevents prolapse. It is not easy at first sight to understand how it can do so; but a steady leakage is very different from a sudden gush, a wound that closes quickly and superficially may be more likely to burst open, and the reopening of a newly closed wound by straining or traumatism is nearly always accompanied by prolapse.

Some statistics recently collected at the Wills Eye Hospital tend, so far as they go, to confirm Parinaud's view. Dr. Kistler, resident surgeon, at my request tabulated five hundred consecutive cataract extractions, with a view of investigating the frequency and probable causes of delayed union (*Trans. Am. Oph. Soc.*, 1898). Of these five hundred cases, union was delayed beyond five days in twenty-six. Fourteen of these twenty-six were cases of simple extraction, and union was delayed five days in five, six days in two, seven days in two, twelve days in one, fifteen days in one, seventeen days in one, and twenty days in one. Prolapse occurred in two cases, but in each within eighteen hours of the operation, and was therefore probably the cause, certainly not the result, of the delayed union.

A prolapse may be the cause of delayed union, but an adhesion of the iris to the wound has seemed to me in several cases to have put an end to the delay. A small prolapse occupying the whole wound or the middle portion is perhaps less likely to delay union than are the edges of a coloboma, after iridectomy, when wedged into its angles. It is well known that Becker, in the examination of eyes operated upon by the Gräfe method, always found the edges of the coloboma incarcerated in the angles of the wound; and those of us who have been in the habit, in past years, of operating by that method have met with cases in which there were actual hernias which sometimes by their contraction drew the pupil well up into the periphery of the anterior chamber.

The text-books vary in their directions for treatment, though most of them advise excision of the prolapse. Some pass the subject in silence. Wecker says that when a prolapse of the iris occurs during the period of cicatrization, the best means of preventing accidents is to prolong as much

as possible the application of the compressive bandage and the instillation of eserine or pilocarpine; that the hernia gradually shrinks, but there remains a deviation of the pupil more or less marked, and sometimes sufficient to cause this opening to disappear behind the corneal opacity in the region of the section. He refers to the advice of Gräfe to perform ablation when the prolapse is covered with a thick layer of plastic exudation, a considerable time after the operation, and admits that he sometimes "resigns himself" to cut off a considerable prolapse to shorten the tedious duration of the cure, though not without grave dread of infection.

In one of the most recent text-books, Fuchs says that "in spite of the use of eserine prolapse of the iris may take place in the days following the operation. In this case we are obliged to make a secondary excision of the prolapsed iris." Panas, a distinguished advocate of the simple method, practices iridectomy, if prolapse has occurred, on the removal of the first dressing, and intimates that this is not a much more serious matter than iridectomy at the time of the extraction. If the prolapse is limited to a very small hernia, called fly's head (*myocephalon*), he says that it may be disregarded.

Dr. Knapp writes in the *Archives of Ophthalmology*, January, 1897: "I have for a long time been conservative in the treatment of iris prolapse—too conservative, probably, in one particular field, the iris prolapse following cataract extraction. The prolapses in this field very rarely occasioned the loss of the eye by inflammation, but frequently such prolapse caused such a disfigurement and so high a degree of astigmatism that the result of the operation left a great deal to be desired. During the last years, therefore, I have made it a routine practice to inspect every eye a day after extraction, be there any irritative symptoms or not, and abscise the iris, if prolapsed, at once, provided there be no septic inflammation. The management of the prolapse is in fact only the application to cataract extraction of a general rule long known and followed by many ophthalmic surgeons; viz., excise the iris when it is possible to make a clean iridectomy. To restrict this general rule is my chief object in writing this communication. When a case came under my care in which I could expect that there would be no inflammation, and the prolapsed portion of the iris, small or large, be eliminated by nature, I treated the case expectantly as long as no threatening symptoms appeared." It seems, then, that though prejudiced against abscision in general, experience has taught Dr. Knapp to make an exception of prolapse following cataract extraction. The iris was abscised immediately only twice in the three hundred cases of simple extraction that Dr. Knapp has tabu-

lated (up to 1890). In the other cases the prolapse was cut off in periods varying from two days to two months after its occurrence, or in some it was allowed to remain. Wherever and whenever, however, an abscision was performed, it seems to have been followed by generally good results and never by disaster; and at the Moscow Congress, Dr. Knapp reported that in 355 simple operations prolapse occurred fifteen times and was successfully treated by iridectomy.

In looking over the records of a number of cataract operations at the Wills Hospital, with another end in view, I met with the following case. A prolapse was noticed the day after the operation, and on the sixth day, as the chamber still remained open, preparation was made to perform iridectomy, but under etherization the iris was spontaneously replaced. The wound was closed the next day and excellent recovery followed, with V. equaling 20/60. In the next prolapse that occurred to me after this, I requested the resident surgeon, Dr. Snell, to make gentle efforts to reduce it, which he did with success eighteen hours after the extraction. The wound was closed the following day, and in two weeks the patient was discharged with the eye quiet and a round central pupil. Immediate V.=20/70; after capsulotomy V.=20/30. A case is recorded in Dr. Knapp's tables in which a small prolapse in the middle of the section followed a rupture of the wound on the sixth day and was replaced at once. The final result was 20/30. Dr. Herbert Harlan, of Baltimore, has also reported a case (Vol. XX, *Knapp's Archives*) in which he reduced a prolapse occurring on the fourth day with good result and central pupil.

In the last few years I have been more and more inclined to the simple operation, until I have come recently to make it the rule, and to perform iridectomy only for special reasons, such as iritic adhesions, a narrow pupil that refuses to dilate with cocain, an immature cataract or one that is likely to furnish a large supply of "sticky" cortical, or an iris that shows a determined tendency to prolapse during the operation. In several cases of narrow pupil, good results have been obtained from simple extraction after partial dilatation with homatropine. When the combined operation has been decided upon on account of the condition of the lens, I much prefer a preliminary iridectomy, as it gives a cleaner coloboma without incarceration of its pillars in the angles of the wound, and the fresh cut edges of the iris are not subjected to bruising in the passage of the lens and to subsequent contact with loose cortical and bits of incised capsule. I have not yet quite got out of my head the notion that extraction with preliminary iridectomy is the safest of all operations, and

have been rather surprised in looking over my records to see how often it has been performed.

I consider as one of prolapse every case in which the iris is seen in front of the lips of the wound, and in fifty-two simple extractions have had eight prolapses, including two that resulted only in a slight distortion or dislocation of the pupil, and their history is briefly as follows :

1. E. D. Very small prolapse on second day; pupil oval but nearly central. V.=20/20—.
2. J. B. Small prolapse few days after operation. Soon contracted to level. V. 20/40.
3. J. S. Prolapse resulting in cystoid cicatrix. V. 20/50.
4. F. R. Prolapse on third day. Eight months later cystoid cicatrix. V. 20/50.
5. Mrs. S. Prolapse third day. Abscised seventeen days later. Narrow clean coloboma. Immediate V. 20/40.
6. I. B. F. Small central prolapse second day. Replaced eighteen hours after operation. Round central pupil. V.=20/30.
7. B. C. Prolapse second day. V., I am sorry to say, not recorded. Probably failed to return for refraction.
8. S. M. Very unmanageable old Italian woman with albuminuria, valvular heart disease and bronchitis. Operation smooth and pupil central. Next day wound gaping and plugged with clot pushing iris before it. When the iris was abscised renewed hemorrhage and a bead of clear vitreous appeared. Evidently a case of iris hemorrhage, probably traumatic, as the dressing had been disturbed. The wound has since closed, and there is a good prospect of useful V. Still under treatment.

It does not seem probable that the chances would have been improved by the combined operation in any of these cases, excepting perhaps the two in which cystoid cicatrices resulted. Though there was 2/5 V. in each, there was a high degree of astigmatism, amounting in one case to 5 D. and in the other to 8 D., which might have been avoided by iridectomy at the time of the extraction or after the occurrence of prolapse; whether or not the latter would have subjected the eyes to much more danger than would the former is an interesting practical point to be decided by experience. The cases of very small hernias did perfectly well without interference, and the results were at least as good as would have been likely to follow the combined operation. The same may be said of the case in which the iris was forced out by secondary hemorrhage, as the free bleeding from iridectomy would have seriously complicated the operation; an important consideration in the case of a restless

and unmanageable patient whose general condition forbade the use of an anesthetic. The result in the case of replacement left nothing to be desired.

The conclusions based on my own limited experience, and a study of the reports and opinions of others, are:

The prolapse of the iris during the after treatment of simple extraction is by no means so serious an accident as many authorities have considered it.

That very small hernias may safely be let alone, unless they interfere with the closure of the wound.

That the best treatment for a large proportion of more extensive prolapses is prompt abscision; though infective inflammation of the iris or conjunctiva may necessitate delay.

That in a certain number of cases there may be a third choice of treatment, besides abscision and expectancy, viz., replacement. This presupposes the absence of adhesive or septic inflammation.

BLINDNESS FROM SYMPATHETIC OPHTHALMITIS — RESTORATION OF VISION BY CRITCHETT'S OPERATION.*

BY G. E. DE SCHWEINITZ, M.D.,

PHILADELPHIA.

Doubtless we all agree with the late Mr. George Critchett's advice not to attempt operative interference during the progress of sympathetic ophthalmitis. As he says: "It is only when the disease has run its course, and finished its work of destruction, so that the eye has not only become perfectly quiet, losing all vascularity and sensitiveness to light, but when this condition or quiescence has existed for some time, that it may become expedient to commence operative measures."†

Iridectomy, iridotomy and various forms of extraction having proved unsatisfactory or disappointing, Mr. Critchett proposed and practiced the following operation: The patient is placed under the influence of an anesthetic, a speculum is introduced, the globe is fixed, and a fine cutting needle is introduced through the cornea, its point being directed to the center of the capsule. This structure is penetrated by making a rapid rotary movement, on the principle of a gimlet. A second needle

*Read before the Ophthalmic Section of the College of Physicians, Philadelphia, Jan. 16, 1900.

†*Royal Lond. Oph. Hosp. Reports*, Vol. X, Part 2, 1831, p. 144.

is introduced from the opposite side and the points separated from each other, the result being a rent in the center of the capsule and the escape of the soft lens matter. The operation must be repeated at proper intervals until a clear pupil has been obtained.

The following is a case in point:

Benjamin C., aged 53, born in Philadelphia, married, an engraver and printer by trade, was admitted to the ophthalmic wards of the Philadelphia Hospital on August 17, 1898.

History.—His family and personal history in detail is unimportant; he has enjoyed good health; he has spread occasionally, but is not a steady drinker; he smokes and chews tobacco excessively; he is not syphilitic.

In March, 1898 (he does not remember the exact date), his left eye was injured by a blow from a walking stick. He remained one night in the Polyclinic Hospital, and then returned to his work, occasionally visiting the Howard Hospital and also the office of an eye-surgeon for advice and treatment, which he seems not to have followed with regularity. About six weeks or two months after the injury of the left eye, which probably caused an irido-cyclitis, although this is not quite clear from the patient's statement, sympathy began in the right eye, which "got red as if he had taken cold in it." He was advised "to have an operation" (probably enucleation), but declined. He then wandered to the Homeopathic Hospital, where he was admitted and treated for three months, and where his left eye was enucleated.

After his admission to the Philadelphia Hospital (August 17, 1898), he first came under the care of my colleague, Dr. Oliver, who found typical irido-cyclitis and secondary cataract, the eye being still much injected; V. = movements of the hand. Under treatment the inflammation began to subside, and by October 29, 1898, vision had risen to counting fingers at two feet.

On November 3, 1898, I divided and resected a small band of cicatricial tissue which united the central region of the socket with the upper lid, but which, however, was not connected with the stump of the optic nerve. No operation was attempted upon the right eye until January 4, 1899, when I made with some difficulty, owing to the friability of the iris and its close attachment to the capsule of the opaque lens, an iridectomy upward and slightly outward. In a short time this coloboma closed, and its position could only be surmised by a somewhat irregular scar-line. Vision was now movements of hand; good light field. General medical treatment—iron, quinine, arsenic, and at times mercury, with atropine

and scopolamine locally—was continued until June 26, 1899, when my chief assistant, Dr. Veasey, while temporarily in charge of the wards, attempted irido-cystectomy. This met with slightly better success than the previous iridectomy, because although the incision closed, a small area of lens-surface, about two millimeters in length and one millimeter in width, remained uncovered by adherent iris. This space afforded the opportunity of performing a modification of Critchett's operation, which I did as follows on December 6, 1899:

The eye having been cocaineized, a Bowman's stop-needle was introduced so that its point rested upon the small area of exposed lens-capsule, which it was made to penetrate by a twirling or gimlet-like movement. Almost immediately semi-liquid, grayish-white lens-matter began to escape alongside of the needle and fill the anterior chamber. The needle was withdrawn after the opening had been enlarged by slight vertical and lateral movements, and the eye was dressed with a light compressing bandage. In twenty-four hours the anterior chamber was clear and the patient could uncertainly count fingers. On December 13, 1899, a Knapp's knife-needle was introduced and the capsule carefully cut and thrust aside. This manoeuvre created a clear oval pupil, somewhat below the center of the iris, to the upper margin of which the remains of the lens-capsule is clinging. There was no reaction, and in ten days the patient's vision was $5/60$ with $+12^s$. Two months later V. with $+12^s + 6^\circ$ axis 75 was $5/25$, and with $+4^s$ added he could read D. = 0.75 at 20 cm.

Operations of this character, according to the author of the surgical procedure, and also according to J. B. Story, who has written upon this subject and advocated the measure, are best suited to young eyes. That they may also prove successful in old eyes—my patient was 53—is evident from the present report. It is essential that the eye shall be free from "vascularity and sensitiveness to light" for some time before the operation is undertaken. This necessary condition of affairs was secured in the present instance by months of careful medicinal treatment.

TO ASSIST BLIND PEOPLE.—The American Blind People's Higher Education and General Improvement Association will soon ask Congress to provide for the appointment of a commission for the purpose of affording facilities of higher education to the blind. A committee headed by E. J. Nolan, of Chicago, Ill., will present the matter to Congress.

AN UNUSUAL CASE OF ORBITAL GONORRHEA, INFECTION FOLLOWING IRRITATION FROM AN ARTIFICIAL EYE—COMPLICATED BY SEPTIC ENDOCARDITIS—DEATH AND AUTOPSY.

BY WILLIAM R. MURRAY, Ph.B., M.D.,
MINNEAPOLIS, MINN.

Attention is called to the following case on account of the unusual manner of infection, and the somewhat rare cardiac complication following the same:

Patient C. M., male, colored; æt. 18 years. Admitted to the hospital June 2, 1897. Patient had had left eye enucleated some time previously, and had been wearing an artificial eye. On entrance to the hospital he was recovering from an attack of gonorrheal urethritis, and stated that discharge from orbit began about one week previously. On examination there was found a profuse purulent discharge from left orbital tissues, with swelling of upper and lower lids; patient was sent to purulent ward, and put upon the usual treatment for a purulent ophthalmia; iced compresses, applied constantly, bichlorid irrigation every half-hour, and daily applications of a solution of argent nitras. Condition improved rapidly until the end of the second week, when he developed signs of an acute valvular disease of the heart. Diagnosis was made of acute endocarditis, probably resulting from the entrance of septic material into the circulation, and the formation of secondary foci of infection within the heart. Death occurred on the 20th. Autopsy confirmed the diagnosis; the mitral valves showing a vegetative endocarditis, the valvular vegetations being abundant along the line of contact of the valves.

The literature bearing upon the above case is exceedingly limited. Würdemann* has reported a case of gonorrheal ophthalmia through infection by medium of an artificial eye, and Morton† has reported a similar case, but in both of the cases the course of the ophthalmia was uneventful, there being no grave complications. With the exception of the two cases cited, a careful search through the current medical literature and

**Ophthalmic Record*, 1892, Vol. II, p. 108.

†*Ophthalmic Record*, 1892, Vol. II, p. 18.

the standard text-books on ophthalmology has failed to disclose any reference to the above mode of infection, or to the grave complications present in the writer's case.

This case seems to be of special interest as showing, *first*, that gonorrheal infection may readily occur in the orbit through the medium of an artificial eye, especially if the tissues have been subject to irritation, and, *secondly*, as showing the possible complication that may arise from the presence within the orbital tissues of a purulent discharge; the close approximation of the blood vessels making the possibility of a meningitis, a septicæmia, or, as in the above case, a septic endocarditis, much more liable to occur than in an ordinary case of gonorrheal conjunctivitis.

409 Dayton Bldg.

A VALUABLE SUBJECTIVE METHOD OF MEASURING ASTIGMATISM.

BY EDWARD JACKSON, A.M., M.D.,

DENVER, COLO.,

Illustrated.

The ability of the astigmatic eye to see clearly lines that run in the direction of the focal line which falls upon its retina is the basis of many tests for astigmatism. But the means of utilizing it for the exact determination of the principal meridians and the difference of their refraction, which is of greatest practical value, and which for years I employed as a routine procedure, has never been described in all its important details. Since becoming thoroughly familiar with skiascopy I have used this test but little. For skiascopy is still more accurate, is an objective method, and reveals various things about the refraction that are not revealed by any other test. But if one will not master skiascopy, but will continue to rely chiefly on subjective tests, it is important to multiply them and use the best of them.

This test is made with spherical trial lenses, and a card upon which are three parallel lines. The card is mounted so that the lines can be turned parallel to any meridian of the eye and their direction easily noted. It is shown in Fig. 1:

Such a card can readily be made by anyone who can use a drawing-pen. The lines and the spaces should each be wide enough to subtend an angle of slightly over one minute. For use at four meters the total

width of the three lines and two spaces should be about 7 mm. For use at six meters this width should be 10 mm. The card with the lines must be supported so that it will turn freely about its center. The card which supports it is best hung from two points, to keep the scale of directions always true. But accuracy in the determination of the principal meridians will always depend on having the patient's head erect. Any inclination to either side introduces an error.

To use the test: Place before one of the patient's eyes (the other being covered) the convex spherical lens that is a little (0.25 or 0.50 D.) too strong, or the concave lens that is a little too weak, to allow the best

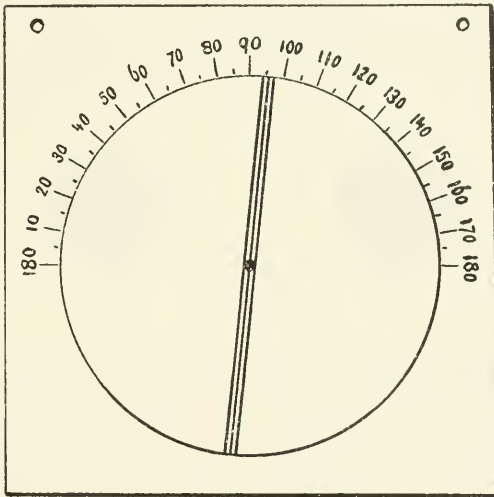


FIG. 1.

distant vision obtainable with spherical lenses. Rotate the lines and have the patient tell in which direction they look the clearest. Then, starting from this position, turn the lines, first one way then the other, until the patient is sure they are commencing to blur. Note these two directions in which the lines begin to blur. Half-way between them lies the meridian of greatest refraction. Find by trial, under a cycloplegic, the lens that renders the lines most clear when placed in this direction. This is the lens that corrects the meridian of least refraction. Turn the lines to a right-angle with their former position, and find by trial the lens that here renders them clearest. This is the lens that corrects the meridian of greatest refraction. The difference between the strengths of

these two lenses (adding their strengths if one is convex and the other concave) is the amount or degree of astigmatism. Each step in the test should be gone over again and again, to make sure of the accuracy of the result.

Let me illustrate by an example. Suppose the patient's vision is 4/15 without any glass, and remains the same with weak convex lenses up to 1.50 D. sph., but falls to 4/15 partly with + 2 D. sph. We place + 1.75 D. sph. lens before his eye and turn the lines in different directions. He finds they appear best when about vertical. Starting from the vertical (90°) and turning them either way, and making repeated trials, we find they begin to blur at 85° in one direction and 105° in the other. The meridian of greatest refraction is then at 95° . Trials with various lenses show that the lines turned to 95° are seen most distinctly with + 1.50 D. sph. The lines are then turned to 5° , the other principal meridian; and trial with lenses shows that they are best seen here with



FIG. 2.

— 0.75 D. The difference between the two or 2.25 D. is the amount of astigmatism. The lenses, either of which will give the best vision, will be — 0.75 D. \odot + 2.25 cyl. ax. 95° or + 1.50 D. sph. \odot — 2.25 cyl. ax. 5° .

In this case the + 1.50 D. sph. lens would have answered about as well to fix the meridian. But the + 1.25 D. lens would have been decidedly inferior, readily admitting an error of 5° or 10° in the direction of the meridian. This would probably have been followed by the selection of + 1.25 D. for one meridian and — 0.50 D. for the other, underestimating the astigmatism by 0.50 D.

When the test is used without cycloplegia one must determine for each meridian, not the lens with which the lines appear most clear, but the strongest convex or the weakest concave with which they appear clear. In this case it is even more important to have the first lens sufficiently convex; and the exact meridian should be determined and used with great care.

The test which the above most closely resembles is the test with the stenopaic slit, for which the same cautions are required. This test is how-

ever superior to the stenopaic slit. It is more accurate. The reason for this seems to be that with the lines the whole pupil is used. With the slit only a narrow strip of the pupil is tested, light being excluded from the other portions. This exclusion gives the effect of diminished illumination, which always entails diminished delicacy of subjective tests. Again, the stenopaic slit may be carefully adjusted in front of the patient's pupil so that the strip of pupil through which light enters extends exactly across the center as in Fig. 2, A; but a slight change in the position of the head will throw the light pencil admitted through the slit quite to one side of the pupil as at B; perhaps quite off the visual zone; so that the refraction measured with it does not exactly correspond with the true refraction sought. Such a source of error is easily overlooked; but it sometimes renders the results obtained with the stenopaic slit quite uncertain or misleading.

The test with the lines, as above described, is but a slight modification of a very common test for astigmatism. Some may think that its minute description is quite uncalled for; but its accuracy depends on attention to details; and minute accuracy in measuring astigmatism very generally makes the difference between relief and non-relief for the patient, between success and failure for the ophthalmologist.

EYE AND EAR WORK IN THE LONDON HOSPITALS.*

BY E. OLIVER BELT, M.D.,

Surgeon to the Episcopal Eye, Ear and Throat Hospital, etc., etc.

WASHINGTON, D. C.

To an ophthalmologist and otologist the most interesting places in London, from a professional standpoint, are the Royal London Ophthalmic Hospital, better known as Moorfields Eye Hospital; the Royal Westminster Ophthalmic Hospital, the Golden Square Throat Hospital, founded by Sir Morell Mackenzie, and the London Central Hospital for Ear, Nose and Throat.

I first visited old Moorfields, and I must confess that I was somewhat disappointed not to find the improvements in aseptic methods expected since my visit there eleven years ago. Even the old red blanket for the operating table appeared to be the one in use during my former visit, and nearly everything else in the operating room presented the same appearance; however, this may have been due to the fact that they were then

*Read at a meeting of the Medical Society of the District of Columbia, Dec. 6, 1899.

preparing to move into their new hospital and were putting up with old appliances temporarily before moving. But a visitor will always see much at Moorfields to interest him. More than 100,000 visits were made to the hospital last year by eye patients alone, substantiating its claims to being the largest eye hospital in the world. You may form a better idea of what can be seen there in a few weeks when I tell you there is an average of more than 300 patients a day; about 1,000 operations for cataract were performed there last year, about 400 iridectomies were made, more than 200 operations were performed for strabismus, and more than 200 eyes were removed. With such a large out-patient department many interesting and some exceedingly rare diseases are seen. The day of my first visit, Mr. Morton was one of the surgeons for the day, and as he is one of the best, I will describe his method of cataract extraction.

A 10 per cent cocaine solution is instilled a few times immediately preceding the operation. The eye is then irrigated with boracic acid solution, the lids are held apart with a speculum, the corneal section is made with a Græfe knife, the capsule being divided as he makes the section, and a long conjunctival flap is made to secure better apposition of the corneal wound. Cocaine is again instilled before making the iridectomy, and a painless operation is thus secured. The iridectomy is made with the De Wecker scissors. The lens is then expressed with a hard rubber lens scoop, or a Daviel spoon, the speculum is removed and the remaining cortical substance teased out by manipulation of the lids. Atropia ointment is then used, and both eyes are bandaged for three days, after which only the eye operated upon is kept closed for ten days, and the patient discharged the fourteenth day.

The next operation that especially interested me was by Mr. Gunn. It was removal of the lens for high myopia. The patient, a female of about twenty-five years, had myopia of 20 D. Mr. Gunn had needled the lens ten days previously. After irrigation with boric acid solution, cocaine was instilled, the cornea was opened with a keratome and the soft cortical substance was removed with a Daviel spoon. I also saw a number of these cases operated upon in this manner by Mr. Hartridge, at the Royal Westminster Ophthalmic Hospital. At Moorfields during the past year about seventy-five cases were operated upon. In more than half a simple needling was done, as in soft cataract. In the others, after needling, the soft cortical substance was evacuated by curette, as heretofore described. The operation is not a difficult one, and the results in more than 2,000 cases which have been reported have been such as to establish the operation as quite justifiable in myopia of 16 dioptries and above, in

which the near-sightedness is generally sufficient to materially interfere with the vocation of the patient. The chief risks in the operation seem to be infection, which is very rare with careful surgeons, and detachment of the retina, which has been reported by several operators. As detachment occurs, however, in about 20 per cent of these cases when not operated upon, it is questionable whether the operation is a factor in its cause. In myopia of 20 D. the extraction of the lens about neutralizes the near-sightedness. Deep corneal ulcers are treated quite heroically, but successfully, by galvano-cautery, or application of pure carbolic acid. The latter method is as follows: The eye is irrigated with bichlorid solution 1-5000, 10 per cent cocaine is instilled and the limits of the ulceration are defined by the use of fluorescein, which, as is well known, colors the affected surface green. The ulcer is scraped with a corneal spud, or curette, dried with blotting-paper and a drop of carbolic acid applied. The eye is again irrigated with bichlorid solution and then bandaged the after treatment being instillation of atropia or eserine.

In many cases of keratitis, or corneal ulceration, heat is applied by means of the Japanese muff-warmer, or hot-box, as was recommended by Dr. Chisolm some years ago.

Iridectomy seems to be practiced as generally for chronic glaucoma as for the acute form. The Græfe knife is used for making the corneal section. A radial incision is then made in the iris and it is torn from its attachment the full length of the corneal wound, then cut off. In this way better drainage of the eye is thought to be obtained.

I saw quite a number of cases of removal of steel from the vitreous with a magnet, generally through the wound, but in one case by Mr. Collins at Moorfields, the wound had healed; the steel was located by the ophthalmoscope, the sclerotic was opened at the spot indicated, the magnet introduced and the steel was successfully removed.

I saw one case of sympathetic ophthalmia which had been arrested by the hypodermic injection of pilocarpin. The Mules' operation, or its modification (insertion of a glass globe in Tenon's capsule), is practiced to some extent, perhaps in 10 per cent of the cases in which the eye has to be removed. Refraction work does not receive the careful attention there that it does in our hospitals, very little attention being paid to slight degrees of astigmatism. The ophthalmometer is rarely used, but retinoscopy is practiced a great deal. Little attention is paid to muscular weakness and partial tenotomies. At Moorfields ophthalmoscopy is a fine art, and with the exception of the few criticisms above made there is probably no place where ophthalmology is better taught than there.

In regard to ear, nose and throat work, an American is first impressed with the absence of the compressed-air apparatus in these special hospitals. What little spraying you see is done with the hand atomizer, the main treatment being made by cotton applicators. At the London Central Hospital for Nose, Ear and Throat one can see an immense amount of operative work. For example, one afternoon I saw Dr. Dundas Grant remove enlarged tonsils in six cases, adenoids in six, enlarged turbinates in three and a spur of the septum in one—all in forty-eight minutes under nitrous oxid gas, except one case under chloroform, a babe fourteen months old with enlarged tonsils and adenoids.

He uses Doyen's mouth-gag and insufflates the nostril with euophen after removal of the turbinates. In chronic cases of suppurative otitis media with involvement of the mastoid, a very complete and thorough operation is usually performed, the mastoid antrum and auditory meatus being thrown into one. The posterior wound in some cases is then closed and drainage secured through the external auditory meatus.

At the Golden Square Hospital suprarenal extract is being used very successfully to prevent hemorrhage in operations on the nose. Antitoxin is used for diphtheria in nearly all stages of the disease.

I will not detain the society longer with a recital of work that is more or less familiar to all, but in closing, wish to say that no matter how well one may keep up with the literature of the subjects in which he is most interested, he cannot visit these large hospitals without feeling broadened and well paid for time and money expended in the trip.

INJURIES TO THE CRYSTALLINE LENS.*

BY S. MITCHELL, M.D.

Oculist and Aurist to St. James Mercy Hospital, Oculist to Erie Railroad.
HORNELLSVILLE, N. Y.

Illustrated.

In cases of perforating wounds of the cornea the crystalline lens is injured with about equal frequency as the iris. Injury to either one, unaccompanied with a wound to the other, is not as likely to be followed by such disastrous sequela as when both are injured.

A blow upon the eyeball, where there has been no laceration or perforation and where the crystalline lens has received the impact, either through the cornea or the sclerotic, may be sufficient to cause partial or

* Read at the annual meeting of the Erie Railway Surgeons in Cleveland, October 5th, 1899.

complete opacity of this body. Wounds that perforate the capsule and allow the aqueous humor to reach the lens are always followed by a more or less rapid disintegration and absorption of this body.

The following is a report of two cases of injury to the crystalline lens. In each case the missile that inflicted the wound perforated the lens capsule without any injury to the iris:

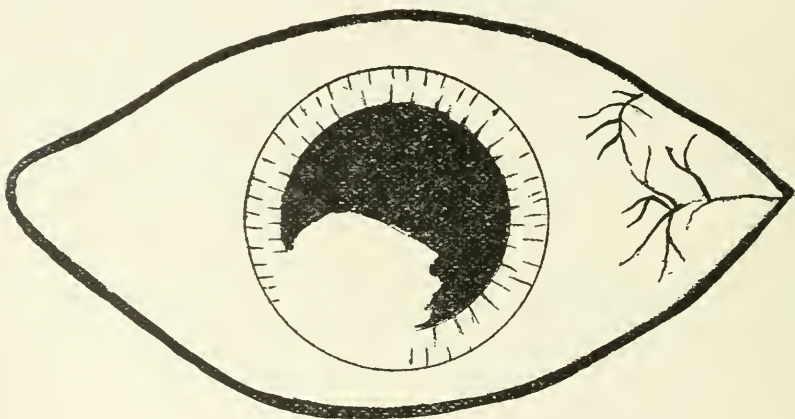
CASE 1.—James G., aged 28, a locomotive fireman on the Jefferson Branch of the Erie Railway. Case referred to me by Dr. Miller, of Susquehanna, Pa. He came to my office January 9, 1899. He had received a perforating wound of the cornea of the left eye by being struck with a flying piece of coal while breaking up coal on his engine. The accident occurred about eighteen days previous to his first visit to my office.

The external wound described two sides of a right-angle triangle, with the vertex pointing toward the pupil, and was situated in the lower nasal quadrant of the cornea. The wound in the capsule of the lens was wholly within the pupillary area, and the iris was uninjured. Soft lens matter had exuded into the anterior chamber and the whole lens was semi-opaque. Vision in this eye was perception of light only. Inflammation and circumcorneal redness was slight. Pain was not complained of at all.

The only treatment was the instillation of a 1 per cent solution of atropine into the eye three or four times a day. He returned to his work after an absence of two months. Absorption of the lens matter did not progress very rapidly. When I last saw him this process was about half completed and he was able to count fingers at two feet.

CASE 2.—George R., æt. 31, a machinist, employed at the Clark Bros. Machine Works, at Belmont, N. Y., was brought to my office by his physician, Dr. Barney, August 31, 1898. A few days previous, while chipping a casting, he was struck in the left eye by a jagged fragment of cast iron that flew from the casting. The external wound was Y-shaped, and was situated in the lower temporal quadrant of the cornea. The iris was not injured, but the pupillary margin had become fastened in the corneal wound at one point to the extent of 1 m. m. Subsequently this was released by the action of the mydriatic. The wound in the lens capsule was very small, yet a quantity of the soft lens matter had poured out into the anterior chamber and could be seen floating there like a fleecy cloud of vapor. The whole lens was so opaque that vision was simply light perception. Inflammation, redness and pain were very insignificant. A few drops of a 1 per cent solution of sulphate of atropine was instilled into the eye every four hours. The case was watched for a few days, and as

he became anxious to return home I allowed him to do so, after warning him to report to me *in person* should there be any pain in the eye. This warning seemingly was disregarded, for two weeks later he appeared at my office, when he had the following story to relate: The eye apparently had progressed favorably and without any change in its appearance, to the eye of the ordinary observer, for ten or twelve days after reaching home; then, without any known cause, there was quite a sudden onset of very severe pain in the eye and left side of the head, attended with nausea and vomiting. After continuing for twenty-four hours the pain suddenly subsided and all other disagreeable symptoms at once disappeared. The day following the abatement of the pain he journeyed to Hornellsville to see me, as he was anxious to learn the cause of the changed appearance of



the eye. One glance at the eye was sufficient to reveal the cause of the pain and other symptoms related above. The eye was no more red or inflamed than when last seen. The most noticeable change, however, was in the condition seen in the anterior chamber. There was a large rent in the lens capsule and about two-thirds of the anterior chamber was occupied by lens debris. The unusual appearance of the eye, that had excited my patient's apprehension, was due to the presence of this large quantity of lens matter in the anterior chamber.

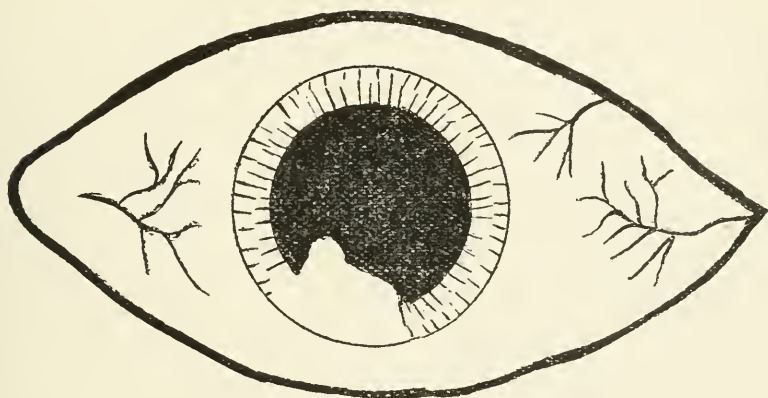
The cause of this experience was doubtless as follows: The first wound in the capsule was quite small, yet large enough to allow the lens to imbibe a sufficient quantity of the aqueous humor to cause this body to soften and swell, hence the glaucomatous symptoms that were complained of. The increased swelling of the lens finally resulted in ripping open

the capsule and thus liberating its contents, and a spontaneous cure of the secondary glaucoma was wrought.

The absorption of the extruded lens matter went on very rapidly, as will be seen by the two sketches of the eye that are copies of some made by the patient himself, and sent to me about two weeks after his return home. The subsequent progress of this case toward recovery was uneventful.

He came to see me on the 21st of January last to have a pair of glasses fitted. I found that the lens of the injured eye had been wholly absorbed, and with a + 12 D. vision was 18/30, and ordinary newspaper type could be read fluently by using a +16 D.

It must be quite evident to all who have listened to this paper that it



was not intended as an exhaustive treatise on the crystalline lens and of the injuries to which it might be subjected, but simply as the report of two cases of perforating wound of this body. They are reported for the purpose of showing how quite extensive wounds to the eyeball, made by such rough, jagged missiles as a lump of coal, in Case 1, and a sand-covered fragment of cast iron, in Case 2, and implicating this very essential part of the visual apparatus, may occur and yet the eye recover, with vision that can, under certain conditions, become useful.

Case 1 had for many years been afflicted with chronic purulent otitis media in both ears, and fetid pus was discharging quite freely from both ears when he came to me for treatment of the injured eye. Hence it was something of a marvel that with these septic surroundings the wound did not become infected.

In Case 2, the relief from a very grave complication, that was obtained spontaneously, was certainly very gratifying to myself, since it is the physician alone who can appreciate the importance of prompt action when the danger signal pain is displayed, as it was for twenty-four hours in this case.

SOME DISPUTED POINTS ABOUT THE ENTOPTIC OBSERVATION OF THE CIRCULATION IN THE RETINAL CAPILLARIES.

BY CARL WEILAND, M.D.

PHILADELPHIA.

Illustrated.

At the last meeting of the American Medical Association, at Columbus, Ohio, Dr. Norton read a paper in which he remarked: "Over twenty years ago I discovered that while looking at the sky through a piece of dark-blue glass I was able to see small bright objects moving in all directions with a peculiar jerky motion." These particles he described as follows: "They are very small, and without visible structure. Their motion is a peculiar jerky one, each particle moving forward rapidly for a moment and then for a moment having a slower motion. During the rapid part of the motion the particles seem to be slightly elongated. Without doubt the apparent elongation is due to the 'persistence of vision.'" He gives good reasons why they cannot be the usual *muscæ volitantes*, and he finally concludes that: "There is everything to prove, and nothing to disprove, that the appearance is due to the image or shadow of the blood corpuscles in the capillaries of the retina falling on its precipient layer. That these corpuscles have been seen and described by others there is no doubt. The only claim to originality that I make is that I have discovered an easy method of seeing them when the eyes are in health."

Dr. Jackson also thought that: "There can be no question but that they correspond in size to the projected image of a blood corpuscle situated in the retina," and he added: "If you will take some object at a known distance and compare it with the size of these moving bodies, you can satisfy yourself that they are approximately the size of the blood corpuscles. I think they are a little larger than the blood corpuscles, probably from diffusion."

Dr. G. Gould at the discussion would not admit that the phenomenon had its origin in the retinal capillaries, but later he withdrew his

objections in the *Philadelphia Medical Journal* (July 22, '99). Here he considers the bright objects as reflexes of light from the corpuscles, these latter acting in certain positions as brilliant reflectors or microscopic mirrors.

Dr. Stillson, in his article in the *Journal of the American Medical Association* (July 8, '99), expresses his belief that we have to do with the shadow of lymph corpuscles as these pass in the lymph channels of the eye.

The writer also considers this phenomenon as due to the circulation of the blood in the retinal capillaries. I cannot, however, agree with any of the explanations before given about the significance of the bright moving objects, though I have also observed them for more than ten years.

Before, however, giving my own views I shall refer, in a few lines, to the history of the phenomenon. This is necessary in order to show how little originality can be claimed by any of the present writers, myself included.

Purkinje, about 1820, and J. Mueller, about 1840, already mention that on looking at an extended light surface they saw bright bodies moving in the visual field in such a manner that after irregular intervals they always appear again at the same place and move through the same path with about the same velocity. They attributed this phenomenon to the circulation of the blood in the retinal capillaries. In 1854 Ruete again described the phenomenon, and he even depicted what he saw in his atlas, *Bildliche Darstellungen der Krankheiten des Menschlichen Auges* (plate viii., Fig. v.). He there shows the little bright bodies in a blue field, and mentions in the text that he observed this on looking at the sky *with a blue glass*. It seems, therefore, that Ruete was the first who recognized the value of blue glass for this entoptic observation. This must have been about twenty-five years before Dr. Norton began to make his observations. About two years later Vierordt gave a detailed account of a similar phenomenon in the *Arch. f. Physiol. Heilkd.* (1856). He studied it by rapidly moving his slightly separated fingers before his right eye, which was looking steadily at the white shade of a lamp. He thus saw a flowing movement in certain regular channels, without, however, seeing sharply the outlines of the vessel-walls; and he even determined the average velocity of the blood current as 0.5 mm.

Meissner described the same phenomenon, but Helmholtz at that time could not convince himself that the explanation of Vierordt was correct for his own observations. Only after having read the paper of O. N. Rood, of this country, did Helmholtz succeed in satisfying his critical

mind about the connection of this entoptic phenomenon with the capillary circulation.

O. N. Rood, who then was professor of chemistry at University of Troy, described his observations in *Silliman's Journal* for 1860 (p. 264), in a paper entitled, "On a Probable Means of Rendering Visible the Circulation in the Eye." He looked through a blue glass at the sky. What he saw he describes thus: "I saw, with astonishment, that the field of vision was filled with, and traversed in all directions by, small bodies resembling animalculi," which "always appeared elongated in the direction of their motion." He further proved that this appearance could not be due to bodies swimming in the vitreous, but that these bodies, in all probability, "are blood corpuscles circulating in the retina or its immediate neighborhood." The size of these bodies he roughly estimated as about $\frac{1}{1600}$ of an inch.

Helmholtz now repeated these observations with the dark-blue glass, and soon not only confirmed the old experiments, but was also able to give a full explanation. I cannot refrain from giving it in full, because it appears to me that it is the only one which will explain all the details. He says (*Physiol. Opt.*, 2d ed., p. 198): "After I have repeated these observations I believe now, also, that they have their cause in the circulation of the blood in such a manner that a single larger blood corpuscle becomes fixed in one of the smaller vessels. In such a case the blood vessel is apt to get relatively empty in front of this corpuscle, whilst behind it the blood corpuscles accumulate in greater numbers. As soon as the captured corpuscle gets loose the whole crowd moves on rapidly. These are phenomena which one often sees in observing the capillary circulation with the microscope. In the experiment mentioned, a lighter longitudinal streak is first observed in the visual field, which streak corresponds to the empty place in the blood vessel in front of the blockade. This lighter streak is followed by a darker shadow which, as I believe, corresponds to the crowded blood corpuscles." He further found that two small blood vessels, as indicated by this experiment, were perfectly identical in shape and position with those observed in the entoptic picture of the vascular tree (Purkinje's figure). Helmholtz therefore regards the whole phenomenon "as the optic expression of small disturbances in the circulation of the blood, which usually occur only in certain narrow places of the capillary system, and then only at the passage of the larger corpuscles."

This full explanation was written more than thirty-three years ago, and it would appear strange, therefore, that none of the speakers or writers

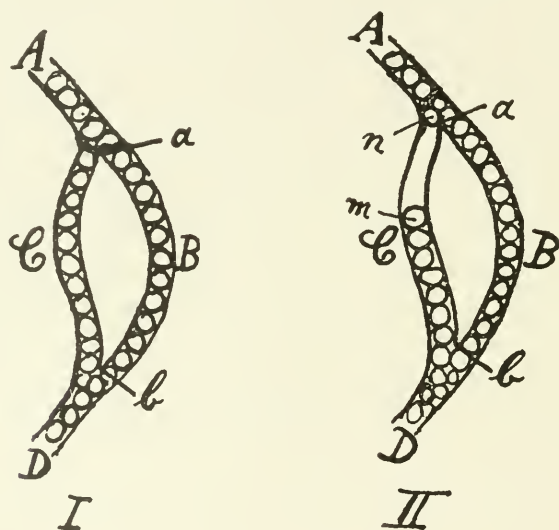
before mentioned refer to it. That it is the correct one there can be no doubt, at least for my own eyes. My measurements would indicate that very strongly. Of course such measurements of small rapidly moving bodies cannot be quite exact, but I am convinced from them that the bright bodies cannot be blood corpuscles, as Dr. Norton and Dr. Jackson believe, though the latter himself considers the bright bodies rather too large, "probably from diffusion."

I stood one meter away from a window-pane, on which I had glued several pieces of paper about 0.5 mm. in breadth and from 2 to 10 mm. long. Fixing now one point of the pane and looking through the cobalt glass at the sky I was able to compare the size of the little darting bodies with that of the small pieces of paper. I found them almost invariably of the same breadth of 0.5 mm., while their length varied from 2 to 10 mm. Now 0.5 mm. at the distance of one meter corresponds to about 0.008 mm. at the retina. This observation then shows that these bodies have the breadth of a blood corpuscle, but that their length, as measured by the size of the papers on the window-pane, would be from four to twenty times too great. These bodies then cannot be blood corpuscles. Jackson upholds his view with the assumption that the apparent elongation is due to diffusion. But that cannot be so, because diffusion would affect all the diameters of the erythrocytes. Dr. Norton considers this increased length due to persistence of vision, but the movement of the blood in the capillaries is not quick enough. At any rate it is not quick enough when by pressure on the eyeball the rapidity of the movement is very much diminished. Still one observes the same elongation even under these circumstances. The view, however, that we have to do here with, relatively empty spaces of the capillaries, agrees very well with the different lengths and the uniform width observed.

Another argument against the view of these bodies being blood corpuscles is furnished by the fact that they disappear so soon again. Some have endeavored to explain this by the assumption that the corpuscles moved into different levels so that they did not throw a shadow any longer. But it is known that the capillaries lie almost in the same plane and therefore at about the same distance from the rods and cones. Slight differences of level, therefore, could not make such differences in the intensity of the shadow. Others, like Dr. Reuben (1860), believe that these bright bodies are due to the corpuscles acting as lenses and thus producing these streaks, whilst again others, like Dr. G. Gould, assume that these streaks are light reflexes, due to the mirror-like action of the corpuscles. Both might explain the disappearance of the bright

bodies by the supposition that the corpuscles had taken new positions in which they neither condensed nor reflected light on the rods and cones. But against these views there is the conclusive fact that the streaks always have the same breadth and always move over the same paths, which could not be expected of blood corpuscles that turn over very frequently.

Of great weight, further, is the fact that the light bodies or streaks are so far apart, while by observation under the microscope we know that the blood corpuscles usually crowd each other. All this can be easily explained by the view of Helmholtz. Let me show this by a few dia-



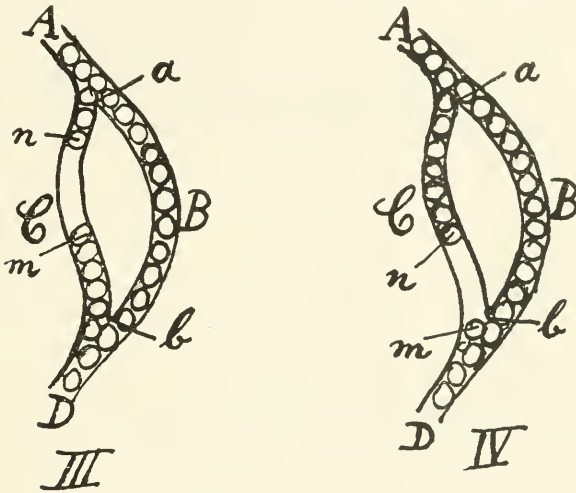
grams, which of course can illustrate only one of the many thousand possibilities.

Let A, Fig. I, be a capillary which subdivides into C and B and then continues again as D. At present all these capillaries may be filled with blood corpuscles moving in one row. No impression is produced, because we only observe changes but not constant procedures in the retina; as little as we see the shadow of the blood vessels under ordinary circumstances.

Now a larger corpuscle may become lodged at *a* at the entrance into C. The circulation in B goes on as before and the corpuscles in C in front of *a* will also move on, so that after a little while an almost empty

space nm is formed in C and we have a picture roughly represented in Fig. II. At this moment the captured corpuscles at a may become free. New corpuscles enter C and the empty space will remain the same size, Fig. III, but move down the capillary C, until the corpuscle m reaches point b , Fig. IV. After this the free space nm will be quickly abolished, because new corpuscles from B fill up the space, until with the arrival of n at b the streak entirely disappears. This goes on so rapidly that the formation and abolition of the free space nm cannot be observed, but only its rapid movement.

These diagrams will explain how different in length and shape these



bright bodies or streaks may be whilst their breadth remains about the same. They also explain why it is that they are seen so far apart and they appear to go through the same paths. It is also easy to see now how the cobalt glass helps in the study of this phenomenon. This glass transmits only the red and blue rays of light. The blue light, however, is more absorbed by the corpuscles than the red light; whence it follows that the rods and cones receive more reddish light from the superjacent corpuscles. If now an empty space becomes established in one of the capillaries, the rods and cones below it are vigorously affected by the abundant blue light by reason of the contrast. Thus a better perception of the empty spaces is insured. Some observers have asserted that they have seen these bright bodies passing even across the point of fixation, and they therefore would argue that the explanation of Helmholtz could

not be correct, as there are no capillaries at the macula. But it is very probable that these observers did not fix their eye sufficiently, and that they saw one of the bright bodies dart across the point of fixation at a moment when the eye had wandered off unconsciously a few degrees. Most observers did not see these bodies at the point of fixation. I myself have never seen the little streaks at that point. I have seen them as near as 4 or 5 mm. to the point of fixation at the distance of 1 meter. This would correspond to about $1/15$ mm. in the retina, which appears to be about the distance the capillaries may approach to the macula. (System of Diseases of the Eye, by Norris and Oliver, Vol. I, p. 339.)

Conclusion: In the experiment with the cobalt glass we observe a phenomenon due to the circulation of the blood in the retinal capillaries; we do not see the blood corpuscles themselves nor their shadows or their light reflexes. We observe in the little bright bodies some relatively empty capillary spaces, produced by small temporary local stoppages of the circulation in the capillaries of the retina.

A NEW PORTABLE STERILIZER FOR EYE INSTRUMENTS.

BY CLARENCE A. VEASEY, A.M., M.D.

Adjunct Professor of Diseases of the Eye, Philadelphia Polyclinic, Demonstrator of Ophthalmology, Jefferson Medical College, etc.

PHILADELPHIA.

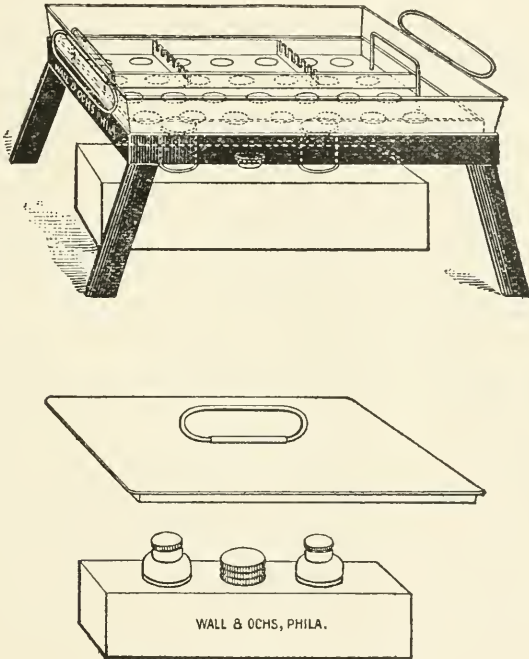
Illustrated.

Almost every ophthalmic surgeon who has been obliged at times to perform operations upon patients in their homes, rather than in a hospital or in his office, has experienced more or less difficulty in obtaining proper sterilization of his instruments. If one does not take a sterilizer with him it is almost impossible to secure in most homes proper facilities for making them sterile, and the portable sterilizers for eye instruments now upon the market with which the writer is acquainted are so small as to be of value only in those operations requiring but few instruments. In addition, the question of economy of space seems to have been given but little consideration.

To obviate some of these difficulties and to obtain a sterilizer that would be compact and at the same time sufficiently large for the various ophthalmic operations we are called upon to perform the writer has, with

the assistance of Messrs. Wall & Ochs of this city, devised the one shown in the accompanying cut.

The sterilizing pan is five inches wide, seven inches long and one and three-fourths inches deep, with handle at each end, and a loosely fitting cover to prevent the escape of steam. Inside of this is neatly fitted a perforated tray, with handles for lifting, containing on one side a movable rack for the more delicate instruments. This tray does not rest flatly upon the bottom of the pan, but upon small buttons, allowing a free



circulation of the water when boiling and preventing that injury which usually occurs to instruments when placed directly upon the bottom of a heated dish. The whole rests upon a skeleton stand, which when not in use is folded and fits tightly around the side of the pan.

One of the best features of the sterilizer is the alcohol lamp. It is six inches long, one and one-fourth inches wide and one and one-eighth inches deep, has two large burners, will bring water to the boiling point in five minutes, and holds sufficient alcohol to keep it boiling for between one and a half and two hours. The wicks are covered by tightly fitting cups,

preventing leakage, and (when not in use) the lamp is carried in the sterilizing pan beside the instrument rack.

The whole is made of polished copper, presents an exceedingly clean and attractive appearance, and is neatly packed in a heavy cardboard box measuring $7\frac{1}{4} \times 5\frac{1}{2} \times 2$ inches, which takes up very little space in the instrument bag.

A SUGGESTION TO HIGH-SPEED RAILROAD ENGINEERS.

To the Editor of the *Scientific American*:

Railroad engineers who travel at a high rate of speed are painfully aware of the peculiar and trying effect upon the nerves of the eyes, caused by objects on the side of the tracks which in effect flash by them, and distract the gaze, which should be fully concentrated straight ahead.

To obviate this, and at the same time relieve the strain on the optic nerve caused by these distracting influences, let the engineer wear a pair of short tubes, say about three-quarters of an inch in length, and painted a dull black on the inside, over the eyes.

These tubes could easily be constructed of some light substance, and made to fit like ordinary spectacles.

Besides the restful effect these tubes produce on the eyes, they at the same time render the vision wonderfully clear by cutting off all diverging rays of light.

ARTHUR SMEDLEY GREENE.

PORT JEFFERSON, L. I., November 9, 1899.

—*From the Scientific American.*

CORRESPONDENCE.

AMBLYOPIA, NEAR POINT AND DR. JACKSON.

TO THE EDITORS OF THE OPHTHALMIC RECORD:

DEAR SIR: Dr. Edward Jackson, in his valuable and progressive work on diseases of the eye, has evidently misunderstood and consequently mistakeaches the true nature of a form of amblyopia described on page 403 of his book:

"Amblyopia from imperfect focusing of the light upon the retina may be regarded as similar to congenital amblyopia, except that until quite late in life vision is still capable of marked improvement. It is best studied in cases of high astigmatism, in which the giving of the most accurate correcting lens will at first leave vision quite imperfect. But with the wearing of the correcting lens vision improves, at first rapidly, then more slowly, until after many weeks or months it may in young persons rise to normal."

No doubt in the hurry of compilation Dr. Jackson overlooked the importance of this the most common form of partial blindness which so often develops in eyes emmetropic or nearly so, and in these this form of amblyopia is best studied, notwithstanding Dr. Jackson states it is best studied in cases of high astigmatism. The doctor is correct in that the proper glass is necessary in this form of amblyopia; he might add that in most cases constant wearing of ground glass lenses is indispensable, and that these induce the use of the amblyopic eye, prevent the eyes from simultaneously seeing or fixing the same object, limit the use of the amblyopic eye—all these until the eyes are fitted with proper glasses and until the return of normal vision—and that if the amblyopia is of high degree or of long standing the eye may be seriously injured by too hard use, especially for near vision.

Inasmuch as this is the first mention of this form of amblyopia in a text-book, and as all possible light should be thrown on the dark subject, amblyopia, the writer feels that this form of amblyopia is sufficiently prevalent and important to be properly understood. Dr. Shradý and the

writer were unable to decide upon a suitable name for this form of amblyopia, and what Dr. Jackson considers cardinal is only incidental.

If the reader desires to scan the literature on this subject, he is referred to the *Medical Record*, October 8 and 29, 1898, and the *Annals of Ophthalmology*, January, 1899.

On page 126 of this text-book, there is a table in regard to the recession of the near point and only three and one-half lines explanatory.

"The following table gives the average power of accommodation in diopters at different ages, with the distance of the near point in inches, from an emmetropic eye having such power of accommodation :

Age-----	10	15	20	25	30	35	40	45	50	55	60	65
Diopters-	14.	12.	10.	9.	8.	7.	5.5	4.	2.5	1.25	0.5	0.
Inches---	2.81	3.28	3.94	4.4	4.9	5.6	7.1	9.84	15.75	31.5	75.74	.00"

This new table involves so much that is novel and radical in its working significance, and is withal so important to the practical refraction of the eye, that a few questions addressed to Dr. Jackson may be of interest to the active and hard-working oculist and to every reader of your excellent text-book :

What methods did you pursue to get results so different from Donders?

How did Donders make his mistakes in taking the near point?

How did you arrange your table to the one-hundredth part of an inch?

Are not such fractional calculations casuistical rather than practical?

Upon how many emmetropes, recorded examinations, are your tables based?

A few years ago the writer found that the near point of eyes made emmetropic by glasses did not agree with the table of Donders, and offered a table based upon corrected ametropia, as there were no emmetropes available. The results brought a few inquiries from some of the patriarchs in the profession; and permit me, Dr. Jackson, to suggest to you what the venerable Dr. Knapp suggested to me, that such startling results should be accompanied by the methods by which they were obtained. The tables based upon corrected ametropia occurred in the *OPHTHALMIC RECORD*, October, 1898.

Respectfully,

NORBURNE B. JENKINS, M.D.

CHICAGO, January 20, 1900.

REPORTS OF SOCIETIES.

SAN FRANCISCO SOCIETY OF EYE, EAR, NOSE AND THROAT SURGEONS.

December 21, 1899.

The President, Dr. W. A. Martin, in the chair.

Dr. Pischl presented a young man who had been injured by the explosion of a steel cartridge. He was seen by Dr. Pischl one hour after the accident, and already the lens was opaque. Just below the pupil was a wound in the cornea one millimeter long. The pupil was narrow and the anterior chamber shallow. As the cartridge was of steel, a large electro-magnet was used after enlarging the wound a little downward, and a bit of steel successfully removed. An incision was also made in the cornea, and an attempt made to remove some masses of lens matter from the anterior chamber, but without success, as the masses proved to be too dense.

Dr. Pischl asked the opinion of the members as to the advisability or not of at once removing the cataract, it being twelve days since the accident, the pupil being widely dilated, tension normal, no tenderness to the touch, but considerable pericorneal injection.

Discussion.—Dr. F. B. Eaton thought the main point in such cases is the dislocation or not of the lens; for if dislocated, glaucomatous symptoms would render extraction necessary; otherwise operation only added fresh injury. Drs. Powers, Cohn and Hulen thought removal necessary, as the lens was evidently pressing upon the ciliary body.

Dr. Sampson Trask presented a case of laryngeal angioma in a healthy man of 28 years. The larynx was otherwise normal, and the growth situated in the most vascular region. The color is dark blue (as seen by reflected light). The surface is lobulated; the attachment is by a broad base, clear of the vocal cords and between the arytenoids. It projects well into the lumen during full inspiration, and beyond the arytenoids (as a dark blue line) posteriorly, during phonation. There is no voice change. The growth seems slightly resistant to the probe. There are

some varicose veins in the left leg dating back many years. Dr. Trask looks upon this growth as being probably a simple varix, varicose veins, or veins possibly containing a clot, and therefore a hæmangioma. The cause could be ascribed to a tendency to varicosity and wrong use of the voice during congestion, and when the parts were in a relaxed condition. Angiomata within the larynx are so rare that such clinical observers as Solis Cohen of this country and Sir Morell McKenzie (whose observations extended for many years pretty much over the civilized world) report never having seen a case of it. Franke Bosworth dismisses the subject in a single paragraph. Lennox Browne's single case (operated on in 1891) is described as "a small, round, smooth growth of pink color, situated at the anterior insertion of the vocal cords." There were hoarseness and a history of recent inflammation. Grunwald of Munich reports a case in his "Atlas." As in Mr. Browne's case, the true nature of the growth was made out by histological examination.

In Mr. Browne's case it was a thrombosed angioma. In Dr. Grunwald's the growth sprang from a broad base in the center of the inter-arytenoid space, "the surface was a bluish red, covered with nodules." These growths were found in men aged respectively 40 and 48 years.

Dr. Trask presented also a case of spontaneous hemorrhage in left lower eyelid. The patient is a seamstress, aged 22, and quite anæmic. One evening before retiring, without known cause, a discoloration of the left lower eyelid came on. She first noticed a slight sensation in the orbital region, which, upon examination in the mirror, was seen to be puffed, but not over-sensitive. The following morning the swelling had increased, and the discoloration was first discovered. Dr. Trask saw it four days later. There was then very little swelling, and no abrasion or bruised appearance, only as now, marked discoloration affecting pretty much all the sub-cellular tissue of the lower eyelid. All form of traumatism is denied. The patient is physically weak, belongs to the over-worked class. There is no history of other hemorrhages. The menstrual flow lasts a week, and is of a light color. The blood-coagulation time experimented with to-night shows it prolonged.

Discussion.—Dr. Cohn believed this merely a case of accidental or intentional traumatism.

Dr. Overend had had a somewhat similar case about ten years ago, and he had concluded to attribute it to the logical result of the chlorosis present; there was a chemotic condition of the conjunctiva also.

Dr. Eaton suggested that in Dr. Trask's case there may have been a nocturnal epileptic seizure or vomiting.

In closing the discussion Dr. Trask said: "Spontaneous hemorrhage in the sense that it is causeless is probably a misnomer. Occurring without discoverable cause in any situation, it is a rarity in pathology. There is usually a former change in the blood, as in scorbutus or hemophilia, and who can say there is not an adequate, coöperating local cause also? Else, why does it occur locally and not generally? Fuchs reports spontaneous hemorrhage within the orbit as 'an extremely rare occurrence,' and mentions whooping cough as a cause. We may exclude orbital hemorrhage by the non-involvement of the conjunctiva or sclerotic, which you have seen are clear. In regard to what has been said this evening as to possible injury during the night, I would state again that the condition began at bedtime. I shall examine the heart, blood and blood-vessels."

OPHTHALMOLOGICAL SOCIETY OF THE UNITED KINGDOM.

THURSDAY, DEC. 14, 1899. CLINICAL EVENING.

A. Quarry Silcock, F.R.C.S., in the chair.

Mr. George Keeling showed a case of *congenital subluxation of the lens with secondary luxation forwards*. When first seen, six years ago, both lenses were dislocated. In July last the patient was again seen, and then the left lens was found to be in the anterior chamber. Mr. Keeling attempted to pass a needle into it, but owing to the toughness of the capsule this failed. He subsequently extracted it, and with correction of +12 and +16 she now has vision of 6/9 and J1, in spite of the fact that before the extraction she was highly myopic, as she still is in the other eye. Remarks were made by Mr. Holmes Spicer and the chairman.

Dr. Cecil Shaw brought forward a case of *sympathetic ophthalmitis*, commencing forty days after enucleation of the injured eye. The patient is a healthy girl, aged nineteen, who was wounded in the left eye by a pair of scissors, which were thrown at her, on May 24, 1899. She was not seen by Dr. Shaw until June 20th. There was a wound at the upper corneal margin, with iris entangled. The eye was injected, painful and blind, with—tension. On June 28th the eye was removed entire. This specimen, with the sections, was shown. The patient did perfectly well until August 14th, when the eye became suddenly painful and injected. She was seen a week later, suffering from severe irido-cyclitis and considerable failure of vision. In spite of all treatment the eye went from bad to

worse, the pupil filled with lymph, and the vision is now P. L. only. Dr. Shaw proposes to try the discission operation at a later period, as recommended by the late Mr. Critchett.

Mr. Treacher Collins suggested that perhaps the second eye became affected independently of the first, and he had under his care a man whose eye was removed for an injury in April last, and who came back eight months later with the other eye inflamed, and which, under other conditions, would certainly have been termed sympathetic. Mr. Devereux Marshall thought that one of the most unusual features of the case was the severity of the disease, and he mentioned a case which had come under his observation in which sympathetic mischief had commenced about two weeks after the removal of an eye for injury. The disease was very mild, and the eye quite recovered, and he thought that this was the common experience in such cases.

Dr. Shaw, in reply to a question by Mr. Doyne, said that the choroid had not been examined microscopically.

Mr. John Griffith showed a case of *sarcoma of the upper conjunctival cul-de-sac*. The patient was a woman, aged forty-five. The tumor was first noticed in December, 1898, though there had been brown pigmentation of the ocular conjunctiva for eighteen months previously. The growth was freely excised, but a recurrence has recently appeared. Microscopically, the growth is seen to be a mixed cell sarcoma. Mr. Griffith wished to know the opinion of members of Society as to treatment; whether it would be sufficient to remove the recurrence, or whether it would be better to remove the whole contents of the orbit.

Mr. Devereux Marshall looked upon the pigmentation of the conjunctiva as indicating disease, and from his experience of one case he had seen, he strongly advised the more radical operation, as he thought that anything short of this would not insure the removal of the whole of the disease.

Mr. John Griffith also showed the macroscopic and microscopic specimens of Mr. Work Dodd's case of retinal detachment, which was shown as a clinical case at the last meeting of the Society. It turned out to be a sarcoma.

Mr. A. H. Thompson exhibited a case of *embolism of the central artery of the retina* in an anæmic girl aged sixteen. She had acute rheumatism two years ago, which followed scarlet fever. The points of interest lay in the fact that the papillo-macular triangle had escaped, and also that there was some pulsation of the central artery.

Mr. G. D. Maynard showed a *nasal duct dilator* which differed from

the ordinary probe, in the fact that it could be passed and then dilated when in the duct.

Mr. G. Brooksbank James exhibited a case of *changes in the macular area consequent upon injury*. The patient received a blow on the eye three years ago with a tennis ball. Since the accident the vision has been defective. Several white spots are seen about the macula and an area of pigmentation below the disc.

Mr. Adams Frost and Mr. Hartridge had both seen similar cases, and these were caused by injury such as in the present case.

Mr. A. Quarry Silcock and Mr. G. D. Maynard showed a patient who had both eyes wounded by the explosion of a glass bottle. The right had an extensive wound of the sclerotic on the inner side, from which vitreous was escaping. The left eye had a wound through the cornea-scleral junction, with iris and ciliary body prolapsed. Mr. Silcock sutured the sclera with fine silk, endeavoring not to penetrate the entire thickness of the sclera. The patient recovered vision of 6/12 in the right eye and 6/6 in the left.

Mr. Silcock and Mr. Maynard also read notes of a case of *long persistence of membrane on the conjunctiva after diphtheritic ophthalmia*. The patient, a child, had been under the care of Dr. Mence, of St. Ives Hunts. The eye was destroyed, and had subsequently been removed, and in spite of this the membrane still persists after several months of treatment, and contains an attenuated form of the diphtheria bacillus.

Mr. W. T. Lister asked if antitoxin had been used, and in reply Mr. Silcock stated that it had not been.

Mr. Stanford Morton had a case showing *changes in the macular region*, which, in his absence, were shown by Mr. G. W. Thompson.

Mr. Vernon Cargill showed a patient with a *growth on the right upper lid*, occurring in the site of an old scar where a Meibomian tumor had been removed six years previously. About three months ago the eye became irritable, and on the inner surface of the upper lid a cauliflower-like growth, with a broad base, made its appearance. There were no enlarged glands. A portion was removed for microscopic examination. Clinically, it was thought to be an epithelioma, and Mr. Griffith, who had seen the sections, was also of that opinion.

Dr. Brailey and Mr. Ormond showed a case of *vascular opacity of the lens, probably congenital*. The patient, a little boy of two years and a half, has been under observation since last June. The parents state that they had noticed something white in the pupil when the child was only six

months old, but that the doctor had stated that something was wrong with the child's eye at birth.

On examination the anterior part of the lens of the right eye is noticed to be of an almost milky white color. This opacity is confined to the inner two-thirds, and the inner one-third is rather less white than the middle third, owing to a slight red tinge covering it.

The middle third of the lens is at a different level to the inner third, being nearer the surface. Over the inner third numerous blood vessels are seen, apparently coming from the posterior surface and running round the equator on to the anterior surface. Over the middle third some vertical white lines are seen. Tension normal. V. = perception of light. A dull red reflex is present at the the outer third. No change has taken place since the patient has been under observation.

C. DEVEREUX MARSHALL.

SOCIETY OF OPHTHALMOLOGISTS AND OTOLOGISTS OF WASHINGTON, D. C.

Meeting at Dr. Sutor's, May 19, 1899. Dr. Burnett in the chair.

Dr. Fox presented to the society the case of a young girl, age 9 years; first seen in 1889. Vision at that time was R. 20/40, L. 20/50. Under atropin the vision was brought down to 20/30, both eyes. Patient seen next in 1896, when both eyes were found to be less than 20/200. Sph. + 4.50 before each eye gave the best vision, being R. 20/200 L. 20/70. In May of this year patient was again seen, the vision at this time being about the same as when last seen, but the patient complained of being only able to see directly forward. Up to this time she had never complained of contraction of the field of vision. The field, being taken by Drs. Fox and French, showed that in the right contracted to less than 10°, while in the left to less than 30°. Ophthalmoscopic examination proved the fundi to be normal. The family history is tainted; the patient is somewhat nervous, has some headache, but is not hysterical.

Dr. French made a few remarks on a patient who had marked *ptosis of right eye*, as refraction showed the eye to be astigmatic to the extent of 2 D., with the rule. Wearing this correction the ptosis disappeared, but would return upon removal of glass.

Dr. Polkinhorn cited a case seen recently, in which there was *complete paralysis of the left external rectus*. Upon the patient, however, gazing forward both eyes assumed a proper relation, the expected deviation be-

ing lacking. The vitreous of both eyes was fluid and filled with opacities. The patient had for a year previous to being seen been treated by a local optician, she being told she was getting her second sight.

Dr. Burnett showed a photograph of a case of *enophthalmos of the left eye*. In November, 1898, the patient had had an encounter with a cow. The horn of the animal had badly lacerated the tissue surrounding the eye, the upper eyelid being badly torn and the lachrymal duct laid open. The final result was the left eye was in a sunken condition, from $\frac{3}{4}$ to 1 cm. The patient could move the lid upward, but not to the same extent as the right. The vision was: Count fingers at two meters; the cornea was clear and the iris in good condition. Dr. Burnett said the question was, the cause of the sunken eye. There were some forty similar cases on record.

Dr. Sutor said he had seen, some time ago, a case of *enophthalmos* in which the eye would assume a normal position when the patient assumed a standing position, but upon change of position the *enophthalmos* would again be marked.

The second photograph Dr. Burnett showed was the case of a man with *ecchymosis* and *œdema* around right eye, the conjunctiva not at all affected. Just below the orbital ridge there was a small hard mass in cellular tissue. Thought at first it might be the lachrymal gland, was, however, not sure. There was no involvement of orbital tissue. The patient gave a syphilitic history, and there was some throat trouble.

Dr. Wilmer said he had had two somewhat similar cases, the one was the result of a bicycle accident, the other followed the grippe. Both proved to be an orbital abscess, and were cured by opening.

Dr. Burnett said he hardly thought his case was one of abscess, as the mass was not at all tender.

SECTION ON OPHTHALMOLOGY.

COLLEGE OF PHYSICIANS OF PHILADELPHIA.

Meeting December 19, 1899. Dr. George C. Harlan, Chairman, in the chair.

Dr. C. A. Oliver read the history of a *Case of Traumatic Varix of the Orbit in which Ligation of the Left Common Carotid Artery was Successfully Performed*. The 27-year-old patient had been struck in his left eye five days before being seen. At 4 years of age he was caught between two railroad cars, inflicting such an injury to his head that he bled from

the mouth, nose and ears. There was palpebral swelling, conjunctival cedema, and proptosis. The globe was almost immobile, the iris was fixed, and the retinal veins were engorged. There was a temporal but not orbital bruit. Transient pressure on the left common carotid caused the eye to sink into place and the venous stasis in and around the orbit to subside. These symptoms increasing in spite of continuous compression upon the left common carotid, ligation of the vessel by Dr. T. S. K. Morton was done, resulting in an immediate cessation of most of the symptoms. For the first time retinal venous hemorrhages could be seen. Five months later the eye had become blind from secondary glaucoma, while all of the previous symptoms had disappeared.

The early accident probably was the beginning of either an aneurismal varix between the petrous and cavernous portions of the internal carotid artery and the corresponding cavernous sinus, or a varicose aneurism between the two, in which there was an intervening sac or so-called false aneurismal connection. In either case the lesion was in a protected situation and subjected to little arterial pressure. Therefore it grew slowly or may have remained stationary. The more recent blow upon the diseased region probably increased the opening into the venous structures and gave rise to the orbital varix. The appearance of absolute secondary glaucoma as the final outcome of the condition of the ocular tissues may be in measure understood when it is considered that the eyeball is a lymph-producing organ, which is dependent upon normal blood-supply.

Discussion.—Dr. de Schweinitz mentioned an analogous case of pulsating exophthalmos from varix in the cavernous sinus, in which the bruit and pulsations were controlled by pressure upon the right carotid. The patient had double optic neuritis. Under treatment by rest in bed, intermittent pressure on the carotid, and potassium iodid in large doses the bruit and headache, from which the man severely suffered, were lessened. Twenty-one months later the eyes had partly receded. There were a few new and old hemorrhages in the retinas, and the retinal veins were still enlarged, but there was no neuritis, and the bruit and visible pulsation were entirely gone. This result was effected by an apparatus designed by the patient, by which the carotid was mechanically compressed against the spinal column. This was applied by the patient himself for hours together.

Dr. Risley described a patient with similar symptoms, but without the neuritis. Pressure upon the carotid stopped the bruit, and under potassium iodid the exophthalmos disappeared. An exploratory puncture

of the orbit revealed a small orbital aneurism. It is probable that a clot was formed as the result of pressure upon the carotid, and the clot slowly enlarged by accretion, thus curing the aneurism.

Dr. Harlan described a similar case in which good results followed intermittent compression after continued compression had failed. The patient, a brakeman, injured on a moving car, had extensive exophthalmos, pulsation and bruit, with pain, but little impairment of vision. Twenty-four hours of uninterrupted compression produced very slight improvement. Subsequently the patient used intermittent pressure by means of a stick handily shaped and padded at one end, and found that he suffered less from headache. After three years of this treatment the symptoms entirely disappeared.

Dr. Oliver exhibited three water-color sketches, illustrating various stages in a case of *Traumatic Rupture of the Choroid with Hemorrhage from the Upper Branch of the Inferior Temporal Vein*. The first sketch was made a week after the accident, when there were no signs of reaction; the second, five days later, and showed choroiditis in the macular region and pigment disturbances; the third, four weeks later, and showed changes of degeneration.

Discussion.—Dr. Sweet exhibited a water-color sketch of rupture of the choroid, made one month after the accident, in which degeneration had already set in. The choroid had become partly atrophied, and the retinal vessels were plainly seen passing through the atrophied patch.

Dr. Randall spoke of a case in which a sketch taken immediately after the accident showed that the chorio-capillary coat of the choroid was involved. In a few weeks the atrophic process had extended through the entire thickness of the choroidal tissue.

Dr. Harlan stated that to him the most interesting feature of this case was the late appearance of extensive changes in the macular region, though there was no indication of injury at that point immediately after the accident.

Dr. G. C. Harlan read a paper on *Prolapse of the Iris after Simple Cataract Extraction*. (This paper appears in full on page 55.) He reported two cases, and referred to two others in which prolapses occurring during treatment were replaced with excellent results, and submitted the following conclusion: Prolapse of the iris during the after-treatment of the simple extraction is by no means so serious an accident as many authorities have considered it; very small hernias may safely be let alone, unless they interfere with closure of the wound; the best treatment for a large proportion of more extensive prolapses is prompt abscission, though

infective inflammation of the iris or conjunctiva may necessitate delay; in a certain number of cases there may be a third choice of treatment besides abscission and expectancy—namely, replacement. This presupposes the absence of adhesive or septic inflammation.

Discussion.—Dr. Wm. F. Norris: We agree in thinking prolapse of the iris after simple extraction an unfortunate and dangerous complication. It is not, however, peculiar to this method of operation, and all of us who in years gone by cultivated the peripheric linear (Graefe's) operation will well remember the occasional entanglement of the cut edges of the iris in the wound and the formation of cystoid cicatrices. The position of the wound has much to do with its occurrence or non-occurrence. It was long ago pointed out by Arlt that the incision should be in the clear cornea, just inside of the limbus, thus allowing ample room to evacuate the lens and leaving a narrow rim of corneal tissue around the entire incision. As we well know from the making of iridectomies for glaucoma, the more peripheral the wound the easier the iris prolapses into it. In the two hospitals with which I am connected I have made 168 simple extractions. Ninety-eight of these were done in one institution and seventy in the other. I need hardly say that I have used every effort to perform the operation as well as I could in each instance, but the result in the two series of cases has been most different. In the ninety-eight cases I had only three prolapses, or 3.1 per cent. In the series of seventy I had seven prolapses, or 10 per cent. I believe that the better result in the series of ninety-eight cases is largely due to the better nursing. In this institution special nurses are provided to sit alongside of the bed day and night, to help the patient change position, to gently raise him on a bed-rest, to see that, sleeping or waking, he does not touch the bandage, press on the eye, or roll over on the operated side; of course, also to administer to him his food and drink. In the other institution, except at certain stated intervals, the patient is left to his own devices, greatly to his detriment, as is shown by the much higher percentage of prolapses. As to treatment, I believe that large prolapses should be cut off, and that small ones are best treated by careful bandaging.

Dr. Risley reported the main points in the history of thirty-one cases of simple extraction of cataract done at the Wills Hospital since November, 1895. Secondary operations were performed in ten of the eyes. The pupil was ovoid, distorted by adhesions between the periphery of the iris and the wound in some portion of its course in three eyes, and in one was tucked in the angle, giving rise to the appearance of a typical colo-

boma as after iridectomy. Prolapse of the iris through the wound occurred three times. Twice it was discovered on opening the eye on the morning of the second day, and in both cases was excised, and in both the eyes did well, resulting in V. 6/9 in one and 6/12 in the other. In the third case the prolapse occurred on the morning of the fifth day while the patient strained to urinate in his desire to avoid catheterization. The wound was ruptured near the inner angle, and a small hernia of the iris was found protruding at this point, but as it was covered by the conjunctival flap, it was allowed to remain, and treated by a compress bandage.

In every case of prolapse, or distortion of the pupil to a threatened prolapse, this result was foreshadowed at the time of the extraction, except in the man who caused a reopening of the well-healed section by straining in his effort to urinate. In each of the other cases the operation notes indicate that the iris showed a tendency to prolapse during the operation. Dr. Risley believed that a faulty technique in the operation explained the tendency to prolapse in many cases, while in others it was probably due to the accumulation of cortical material or vitreous behind the iris in the line of the corneal section. But even in these instances the prolapse might be avoided by careful after management of the patient. He was therefore entirely in accord with Dr. Norris as to the importance of care in the after treatment, especially during the first twelve or twenty-four hours. He was of the opinion that prolapse not infrequently occurred in cases where the tendency existed either during the primary dressing (by the man straining to lift his head for the application of the bandage) or while being transferred from the operating table to his bed, or by a jolt on the ward truck, etc. He believed that a conjunctival flap rendered prolapse less probable by the more speedy healing of the wound which it promotes. In only two of the recorded cases was the restoration of the anterior chamber delayed beyond the morning of the second day—thirty-six hours after the operation.

Dr. de Schweinitz said that he selected cases for simple extraction, and believed that when the eyeball was hard, the lens was large, the iris was not readily dilatable, the ciliary region was irritated, the cataract was unripe, and when the patient's mental or physical condition tended to create restlessness, the combined method was preferable. He recorded forty-nine simple extractions, with three iris prolapses. Of these three prolapses, one was restored on the sixth day by the use of eserine, the resulting vision being 6/5; in another, the prolapse was abscised in the usual manner and the edges of the wound stitched, the resulting vision,

without capsulotomy, being 6/20; in the third case, one of large prolapse occurring in a refractory patient, iritis resulted, with closure of the pupil. In two other cases, an hour after the operation the eye was inspected, and, as the iris showed a tendency to prolapse, a small iridectomy was performed. In some of his simple extractions he had not secured a perfectly round pupil, owing either to anterior synechia or attachments of the iris to the capsule; but in these there was no protrusion of the iris between the lips of the wound, and they were therefore not classified as prolapses. Following the teachings of Drs. Norris and Risley, he had believed until recently that one of the most potent causes of iris prolapse was restlessness or movement of the patient shortly after the operation, and yet the three prolapses which he had described had all occurred in patients operated upon in the beds in which they afterward remained, and who had been watched by efficient trained nurses. On the other hand, after operation the patients were transferred from the operating table to a stretcher, then taken to the third floor of the hospital, removed from the stretcher to the bed, and there had been no prolapse. It would seem, therefore, that some other cause beside movement or restlessness on the part of the patient was the most potent agent in causing prolapse, and he thought that inaccuracy in making the section was probably the one to be most reckoned with in this respect. Dr. de Schweinitz did not believe in the use of eserine or pilocarpin either to prevent iris prolapse or to attempt to restore it after it had occurred. If the iris prolapse was noted soon after its occurrence, he would cut it off and reduce the edges of the iris; in other words, attempt to make a clean iridectomy. If it was not noted until the third or fourth day, and the prolapse had become incarcerated, he would treat the eye with a pressure bandage and atropin, believing that the latter agent did not increase the prolapse, and on the other hand, prevented iritis. Necessarily, however, circumstances must alter methods, and each case must be studied by itself. He reported three interesting complications in connection with his series of simple extractions. (1) Complete eversion of the flap twenty-four hours after the operation, replacement, good result. (2) Delayed union of the wound, the iris remaining perfectly in place until the seventeenth day, when it became attached to the margin of the wound, but did not prolapse; anterior chamber closed next day. (3) High astigmatism forty-eight days after operation, with $+ 5 \text{ S. } \odot + 10 \text{ C.}$, axis 170, 6/6. Sixteen months later the glass accepted was $+ 9 \text{ S. } \odot + 3 \text{ C.}$, axis 5, 6/7.5. Dr. de Schweinitz agreed with Dr. Harlan that delayed union of the wound did not favor prolapse, and that adhesion of the iris to the lips of

the wound might be the means of restoring the anterior chamber. In conclusion, Dr. de Schweinitz referred to a method of dealing with prolapsed iris which he had seen Dr. Trousseau employ, viz., simply transfixion of the prolapse with a Graefe knife, without an attempt to excise the hernia.

Dr. Oliver considered the most important factor in the question was the great danger of infection in cases in which with the prolapse there was an open wound. He believed that undue movement immediately succeeding the operation should be avoided, and found it true that some tendency, noted at the time of the operation, often served as a precursor of the condition. He believed that if prolapse is to take place, it will, as a rule, manifest itself quite early. In the performance of simple extraction he limited himself to carefully selected cases in which there were no contraindications.

Based upon a series of forty-nine cases of simple extraction occurring in his practice, he had found four with post-operative prolapse. They all occurred in male subjects with matured cataracts, and did not result in anything that was disastrous to the eye. Two followed smooth extractions, one in eighteen hours, the other in thirty-six hours, without assignable cause. The first was excised and the second restored into position. In both ultimate vision was normal. The third appeared in eighteen hours, and in spite of its presence the wound closed. For three months the herniated portion of the iris varied in size and flaccidity, when it became thickened, flattened, and opaque. Final V. = 20/60. In the fourth case the lens was forcibly ejected during operation, producing a small central prolapse of the iris, which was replaced, obtaining a round pupil. The corneal wound was closed in less than twenty-four hours. On the fifth day a second prolapse, continuing forty-eight hours, occurred. The permanent pupil was irregular in shape, but V. = 20/20. He offered the following as some of his individual conclusions: Post-operative prolapse of the iris in simple extraction is most apt to occur in cases in which the iris has been herniated during the procedure. It may be avoided by gentle massage of the iris through the cornea and the closed eyelids during the operation, but in all such cases the conjunctival sac should be healthy and freely flushed before the procedure. It should be replaced only in cases in which it is fresh, and in which the protruding iris tissue, the wound of incision, and the conjunctival membrane appear normal. It should be excised only in fresh cases in which the protruding iris tissue is bruised and the conjunctival sac is practically free from germs.

Dr. Thomson explained Dr. Knapp's method of after-treatment, by

which it seemed Dr. Knapp gave the iris every chance to prolapse if it was so inclined. Dr. Thomson considers that the iris prolapse is largely a matter of incision. If made by a small, thin knife exactly in the limbus cornea, the edges immediately come into contact and the wound heals promptly. In his own practice he performs more combined than simple operations. While he admits the advantage of a small, round pupil, he contends that the healing is more prolonged, that the eye is more subject to inflammations, and that secondary cataract is more frequent.

In concluding the discussion, Dr. Harlan stated that he was inclined to believe that there may be some truth in Parinaud's statement that delayed union tends to prevent prolapse, or at any rate does not favor it. Of five hundred cases of cataract extraction at the Wills Hospital, recently tabulated, union was delayed beyond five days in twenty-six cases. Fourteen were cases of simple extraction, and in these prolapse occurred twice, in both cases within eighteen hours after the operation, and it was, therefore, probably the cause, but certainly not the result, of delayed union.

HOWARD F. HANSELL,

Clerk of Section.

CHICAGO OPHTHALMOLOGICAL AND OTOLOGICAL SOCIETY.

A regular meeting was held January 9, 1900, with the President, Dr. Ware, in the chair.

Dr. William E. Gamble presented a case of *Interstitial Keratitis*, occurring in a man 43 years of age, who gave a history of having had "sore eyes" twelve years ago, lasting about nine months; he was almost blind during that time; since then his eyesight has been good, until the onset of the present trouble, which began about nine months ago. The patient has never had syphilis; had muscular rheumatism seven years ago; never was without gonorrhea when younger. Two children were born before his birth, both dying in infancy. A sister younger than himself is healthy; never had any trouble with her eyes. With the aid of the corneal loupe the collapsed ciliary vessels are readily seen in the left eye, clearing up the nature of the disease that attacked the eye twelve years ago. No such vessels can be made out in the right eye, which is just recovering from an attack of interstitial keratitis. An examination of fundus of right eye cannot yet be made on account of the opacity yet remaining. The fundus of left eye shows a piling of pigment around the temporal

side of the nerve head, in extent much like the myopic crescent, with this difference, that the pigment seems "piled up" and the outline is more ragged. This patient is slightly hypermetropic; other than this there are no fundus changes in left eye or other changes which suggest inherited syphilis. The right cornea when first seen was opaque in the most part; the whitish maculæ give the appearance of connective tissue deposit.

The history of this case as well as the present findings fairly make out a case of second attack of interstitial keratitis in right eye after an interval of twelve years. The record and diagnosis of the physician who treated the case before is much to be desired, but so far have not secured it.

Discussion.—Dr. Casey Wood said that some ten years ago he made a study of cases of interstitial keratitis at the Royal London Ophthalmic Hospital, and that of nearly one hundred cases seen there he concluded that the disease usually occurs in children or in early adult life, and that one attack follows more or less shortly the other. Instances were rare in which the disease developed after an interval of a number of years in the second eye, or that a second attack followed in a brief period in the same eye. He thought the Hirschberg vessels can be more plainly seen when the pupil is thoroughly dilated, and had found the corneal microscope of Dr. Howe an extremely useful instrument in such cases, even better, perhaps, than the Coddington lens.

Dr. John F. Oaks referred to the case as being due possibly to a specific cause, although there are other causes. Many cases of parenchymatous keratitis have as their etiology congenital syphilis, although in many instances such a history is denied.

Dr. Gamble was surprised to see the small percentage of cases of interstitial keratitis ascribed to inherited syphilis. Michel says about sixty-five per cent of the cases are due to inherited lues, while another author puts the percentage at fifty-five. It is not always easy to ascertain the cause. His experience teaches him that a large majority of the cases are due to inherited syphilis. He would like to know the experience of others in this regard. He had no hesitation in putting the percentage at ninety as being due to inherited syphilis.

Dr. C. P. Pinckard said that his experience had been similar to that of Dr. Wood. He had seen many cases of interstitial keratitis. In his opinion less than fifty per cent were due to syphilis, or, to put it another way, less than fifty per cent could be proved to be syphilitic. A point in favor of the non-syphilitic origin of the disease is that many patients are but little benefited by anti-syphilitic treatment. As a general proposi-

tion, his experience would lead him to state that internal medication is of little or no value, either in shortening the course of the disease or influencing the sequelæ. Local treatment is of the greatest possible value.

Dr. Oscar Dodd showed a case of *quinine amblyopia* which was admitted to the hospital two weeks ago. Four or five months ago the patient was not feeling well, and a friend advised him to take some quinine with whisky. He bought 25 cents' worth of quinine and a quart of whisky, put all of the quinine in a glass of whisky and drank the whole of it at once. The result was that he slept for twenty-six hours, and when he awoke was unable to see. This lasted for two days, at the end of which time he was able to distinguish shadows. At the end of three weeks he was able to walk alone on the street. It is a little difficult to get a clear history, as the patient does not speak English. At present his vision is 20/30 in the right eye and 20/20 in the left. The fields are very limited. Great paleness of the discs is noticed on examination, presenting the appearance of optic atrophy. Patient had a severe tinnitus; he can hear the tick of a watch at twelve inches at present. Tests with tuning-forks do not show affection of the auditory nerves. The case is interesting as showing the typical appearance which is described by a number of different men as quinine amblyopia.

There is only one point in the pathology which he desired to refer to. Holden has published an article in which he details the results of his investigations by the use of quinine in dogs. He says the pathology of amblyopia is this: A destruction of the ganglion cells in the retina, due to the ischemia from contraction of the blood vessels from the effect of the quinine. At first there is a contraction of the blood vessels, producing a severe ischemia, and this brings about the destruction of the ganglion cells in the retina, followed by degeneration of the optic nerve fibers.

The point he desired explained is why the macular region should escape when all of the rest of the fibers are destroyed.

Dr. Pinckard asked as to the condition of the knee jerks, and whether there were any symptoms of locomotor ataxia.

Dr. Dodd replied that the man's gait was undoubtedly due to the restricted fields; that as he walks along he looks down and watches for inequalities in the walk. He walks right, but if there are any inequalities in the walk he does not see them.

Dr. Casey Wood stated that in several particulars the very interesting and unusual case exhibited by Dr. Dodd did not present the typical picture of quinine amblyopia. In the first place, the fields for white

and colors are concentrically and regularly contracted when they are usually irregular. It must be remembered, also, that even in those cases where central vision is not greatly impaired the color fields are much restricted. In the great majority of cases of quinine amblyopia, moreover, the vessels are reduced to mere threads, so that it is difficult to see them without careful search. In the case of Dr. Dodd the veins are very well shown, although the arteries are quite small. However, the patient has the typical white disc seen in cases of quinine amblyopia, and presents such a consistent history of quinine poisoning with sudden and complete blindness in one of previous good vision, that there seems no reasonable doubt of the true character of the disease. As to the pathology of this form of intoxication, Holden, de Schweinitz, Brunner and others have made observations on dogs, and to them we are indebted for what we now know regarding the causation of the signs of the poisoning as it affects the eye. In an editorial by de Schweinitz, in the OPTHALMIC RECORD for December, 1899, he draws attention to the experiments of de Bono (*Archivio di Ottalmologia*, 1894 and 1899), who sums up the various arguments for and against the central and peripheral theories in quinine amblyopia, and presents the following in their order, as the probable events in most cases of ocular cinchonism: *First*, paralysis of the neuro-epithelium of the retina, manifest two hours after taking the poison. Then follows degeneration of the ganglion cells and nerve fibers. This sets in on the third day and gradually increases. Lastly, degeneration of the optic fibers shows itself as early as the seventeenth day, resulting in complete atrophy not only of the nerves themselves, but of the optic tract. De Bono believes that the thrombi found in the central veins may account for the complete blindness noticed in many of these cases.

Dr. Dodd, in closing the discussion, said that de Schweinitz in the new book of Norris and Oliver agrees with Holden that the primary effect is upon the ganglion cells in the retina, and that the optic atrophy is a subsequent effect. He said that he was undoubtedly mistaken in regard to it being an embolism of the central artery.

In regard to the treatment, little has been done. In the history the patient's word has to be taken as to whether or not his sight was good before this, although it bears out the history of similar cases which have been reported. There is such a wide variation in the symptoms and conditions in these cases that no one type can certainly be set down as being always the result of quinine amblyopia. He hopes to follow the case further, and to find out what quantity of quinine was taken.

NEWS ITEMS.

*Personals and items of interest should be sent to
Dr. Frank Allport, 92 State St., Chicago.*

DR. E. OLIVER BELT, of Washington, D. C., has removed his office from "The Albany" to 922 Farragut Square.

DR. W. A. SHOEMAKER, of St. Louis, Mo., will hereafter act as News Editor of the *American Journal of Ophthalmology*.

WE note the appointments of H. Secker Walker, F.R.C.S., Surgeon to the Eye and Ear Department of the Leeds Infirmary, vice H. Bendelack Hewetson, M.R.C.S., deceased, and Hugh E. Jones, M.R.C.S., L.R.C.P., Honorary Surgeon to the Liverpool Eye and Ear Infirmary.

C. DEVEREAU MARSHALL, F.R.C.S., has resigned the Curatorship at the Royal London Ophthalmic Hospital.

W. T. LISTER, B.A., M.B., F.R.C.S., has been appointed Curator to the Royal London Ophthalmic Hospital.

DR. DUNBAR ROY, of Atlanta, Ga., has been elected Associate Member of the American Ophthalmological Society.

DR. W. T. MONTGOMERY of Chicago, sailed for Europe January 30th. He will spend six months, and visit the principal Mediterranean ports.

DR. J. ELLIS JENNINGS read a paper before the St. Louis Medical Society of Missouri, Saturday evening, on the subject of "Torpor of the Retina from Exposure in the Klondike."

AT the annual meeting of the Chicago Ophthalmological Society, the following officers were elected: President, Dr. C. D. Wescott; Vice-President, Dr. Casey A. Wood; Secretary and Treasurer, Dr. C. P. Pinckard.

DR. J. G. HUIZINGA has resigned the professorship of ophthalmology at the Chicago Eye, Ear, Nose, and Throat College, to accept a similar position at the Post-Graduate Medical School.

TRAVELERS in Mexico will be interested in the efforts of the editor of *Anales de Oftalmología*, Dr. Troncoso, to compel the railroads to have the eyes of their employees tested. There is nothing of the kind in force now.

DR. H. V. WÜRDEMANN of Milwaukee, January 25th, delivered a most interesting lecture at the Northwestern University Woman's Medical School on "Injuries to the Eye." The lecture was profusely illustrated with many beautiful pathological eye specimens preserved in cups.

SUIT FOR LOSS OF EYESIGHT.—An employee has begun suit for \$10,000 against a Chicago brewing company for the loss of his eyesight. His work consisted in shellacing barrels and kegs, and it is asserted that the wood*alcohol fumes gradually destroyed his sight.

At a meeting of the St. Louis Medical Society of Missouri, held January 13, 1900, an interesting paper was read by Dr. James Moores Ball on "Sarcoma of the Conjunctiva."

FROM the Land of the Orange Blossom and other flowers, comes wafted to us the notice of the marriage of Dr. J. W. Unger and Miss Florence McMillin. They were united in the holy bonds of matrimony Thursday, January 18th, at Louisville Miss., and are now at home at West Point, Miss.

DR. THORINGTON, of Philadelphia, whose little work on "Retinoscopy" has made such a favorable impression, has written another little book on "Refraction, and How to Refract." It is beautifully gotten up by P. Blakiston's Son & Co. This little book retails for \$1.75, and for any one desiring to know the practical phases of this subject, we heartily recommend the book. We know of no book at the present time that makes the subject of refraction so practical and comprehensive.

JEFFERSON COLLEGE ALUMNI.—The fourteenth annual meeting of the Alumni Association of Jefferson Medical College was held January 20th. Dr. A. H. Hulshizer of the State Board of Medical Examiners presided. Dr. George M. Gould delivered the principal address, entitled "The

Story of an Unknown Hero's Life." The following officers were elected for the ensuing year: President, J. K. Weaver, Norriston; first vice-president, G. B. Dunmire; second vice-president, J. Van Buskirk; third vice-president, W. S. Stewart; fourth vice-president, T. E. Conrad; corresponding secretary, Thomas G. Ashton; recording secretary, Wilner Kruzen; treasurer, W. M. Sweet.

LE MAIRE DENOUNCES OPTICAL RUMORS.—New York, January 9th. There appeared recently a news item to the effect that Le Maire, of Paris, compelled by the existing United States tariff, had filed articles of incorporation in the United States with a capital stock of \$1,000,000, and that his American-made product would be placed on the market shortly.

That there has been an attempt to trade on the name of a celebrated maker is made evident by the following cable:

PARIS, January 5, 1900.

HARRIS & HARRINGTON, 34 Vesey Street, New York:

Insert in Journals that Gladstone & Barry, wholesale optical merchants, Paris, are authorized by Le Maire, of Paris, the only opera-glass maker of this name, to denounce the advertisement of a Le Maire Optical Company in Connecticut with his name as a vast imposture.

GLADSTONE & BARRY.

FROM *Jewelers' Review*.

SCHOOL FOR THE BLIND.—A new and spacious school for the blind has been erected in Montreal, and is to be conducted by the Sisters of Nazareth. Owing to the lack of space in the old class-rooms of the Nazareth Asylum for the Blind, so many children were unable to gain admittance to the classes that the sisters, in order to supply this want, have erected this modern building, said to be a model of sanitation, destined to prove a great benefit to the blind of the city of Montreal.

ACCORDING to the forthcoming report of the New York Institution for the Blind, there has been a continued decrease for the last thirteen years in the number of blind children received at that institution. The report emphasizes that this gain is due to better sanitary supervision, and says: "When this reform was first undertaken, some twelve years ago, a great many cases of blindness were chargeable to our custodial institutions, where the use by the inmates of the roller-towel and common wash-basins did a great deal to propagate eye troubles of every kind.

This mistaken method has been done away with, and the good results of that change, improved by periodical medical inspection, have been most marked."

THE eyeglass carried by Edmund D. Lyons, who plays Nero in F. C. Whitney's production of "Quo Vadis," recently running at McVicker's Theater, Chicago, is a very curious affair. It is an immense emerald set in the folds of a serpent's body. This is historically correct, as we are told that the tyrant was near-sighted and used a large emerald cut so that it rectified this defect. Nero lived, of course, long before modern oculists began to exercise their science. The serpent which Mr. Lyons carries is made of woven gold wire, the body twisting midway into a circle, into which the emerald is set. Beyond this fold the body narrows to the head, the emerald being repeated in the eyes. This unique eyeglass is attached to a golden cord.

WITH the coming year and entering on its fifth volume, *The Journal of Eye, Ear and Throat Diseases* becomes a bi-monthly publication. The editors are Francis M. Chisolm, M.D., John R. Winslow, M.D., both of Baltimore; the associate editors are Wm. Campbell Posey, M.D., and Francis R. Packard, M.D., both of Philadelphia, and Geo. A. Taylor, M.D., of New York City, and Eugene A. Crockett, M.D., of Boston. It will be published by F. M. Chisolm, M.D., at 114 W. Franklin St., Baltimore. The subscription is remarkably low for a journal of this character, namely, one dollar a year, and we extend to the Journal our hearty good wishes.

ONE of the new books of the year is "Diseases of the Eye," by Edward Jackson, formerly of Philadelphia, but now of Denver. This book is intended to meet the needs of the general practitioner of medicine and the beginner in ophthalmology. It is edited by Saunders, and presents his usual features of excellence. It has about six hundred pages, is well illustrated, is of an intensely practical nature throughout, and will certainly become one of the recognized text-books upon this subject. Everything Dr. Jackson writes is well worthy of consideration, and this text-book is no exception to the rule.

MR. BENDELACK HEWETSON, Honorary Ophthalmic and Aural Surgeon to the Leeds General Infirmary, died on May 15th at the age of forty-nine. For some years past Mr. Hewetson's health has been a cause

of anxiety to his friends, but symptoms of chronic renal disease only became threatening during the early months of the year.

Born in 1850, Mr. Hewetson was educated at the Leeds Grammar School and the Leeds School of Medicine, and after qualifying studied for some time at Moorfield's and Guy's. In 1883 he was appointed Surgeon at the Leeds Dispensary, but resigned a few months later on being elected Honorary Surgeon in the Eye and Ear Department of the General Infirmary, an appointment he continued to hold until his death.

In 1893 Mr. Hewetson was president of the Otological Section of the British Medical Association at their annual meeting in Newcastle, and in his opening address strongly advocated compulsory instruction in aural diseases in the ordinary medical curriculum.

At one time or another Mr. Hewetson was Ophthalmic and Aural Surgeon to the Yorkshire Institution for the Deaf and Dumb, Surgeon to the Reynaud Hospital, Willingham, and President of the Leeds Naturalists' Club.—*Archives of Otolaryngology*.

THE third annual meeting of the corporators of the Episcopal Eye, Ear and Throat Hospital, Washington, D. C., was held at the hospital Monday evening, January 8th. The Right Rev. H. Y. Satterlee, Bishop of Washington and President of the Board of Corporators, presided.

Dr. E. Oliver Belt read the report for the attending medical staff, which is in substance as follows:

"During the year 1899 6,596 visits were made to the hospital and dispensary by 1,464 patients, of whom 725 were white and 739 colored. Persons to the number of 158 were admitted as house patients, who spent an aggregate of 2,155 days in the hospital. Of these 67 were free and 91 were pay patients in the wards or private rooms, and 129 were white and 29 colored. Two hundred and forty-three operations were performed, 168 of which were on the eye; 53 operations were for cataract. Since the opening of the hospital, a little less than three years ago, 16,577 visits have been made to it by 3,543 patients, and 587 operations have been performed."

The following gentlemen were elected governors of the hospital for three years, to fill vacancies caused by the expiration of the term of service of eight of the members: Rev. C. E. Buck, Rev. J. B. Perry, Dr. H. D. Fry, Dr. E. O. Belt, Mr. Henry P. Blair, Mr. W. W. Burdette, Mr. George R. Stetson and Dr. C. H. Alden. The following were elected corporators: Rev. R. P. Williams, Rev. Frank H. Barton, Judge Walter S. Cox, Mr. John S. Blair, Mr. Frederick Pilling and Mr. P. W. Blanchard.

FALL KILLS BLIND MAN.—James Chadwick, a farmer from Jacksonsville, Ill., came to Chicago January 4th to have his eyes treated. He was 76 years old. His son, who lives in Chicago, took him to the Illinois Eye and Ear Infirmary. Here he remained, his eyes being bandaged in the course of his treatment. Early Sunday morning he slipped away from his watchmen and went from his room on the second floor to the third floor. A rear window was open, and the man unconsciously, it is believed, walked out of it. He fell to the roof of a low building next to the hospital, and died soon afterward.

CARE OF THE EYES.—The assistant ophthalmologist of the Royal Victoria Hospital, Montreal, Dr. W. G. M. Byers, delivered a public lecture recently on this topic. After elaborating a set of rules for the guidance of his auditors, he spoke of the laxity of the Dominion Government in regard to the admission of immigrants suffering from granular ophthalmia, and stated that if care were not taken the question of trachoma schools would have to be faced at no very distant date. He further spoke of the recent renovation of the Montreal General Hospital, which has placed that institution on the most approved modern footing, and referred to the princely generosity of Lords Strathcona and Mount Stephen, which had added greatly to the facilities in that institution for the sick poor obtaining relief.

COMPETITION FOR THE AMERICAN MEDICAL ASSOCIATION MEDAL.—At the meeting of the American Medical Association, held June 4, 1897, it was resolved to restore the former policy of the Association in favor of offering annually a gold medal for meritorious scientific work. The committee for this year, consisting of Drs. George M. Gould of Philadelphia, E. Fletcher Ingalls of Chicago, and T. W. Huntington of Sacramento, Cal., desires to direct attention to the following rules governing the competition :

1. The medal shall contain the seal of the United States or a seal of the Association, to be hereafter designed, on one side and an Esculapian staff on the other, together with the name of the recipient of the medal and suitable inscriptions.

2. The commercial value of the medal shall be \$100.

3. A standing committee on prize medals, consisting of three members of the Association, shall be elected by the Business Committee as follows : One for one year, one for two years, and one for three years, and thereafter one to be elected yearly to hold office until in either case his successor has been duly elected. In no case shall a member of the Business Committee hold a place on the Committee on Prize Medals.

4. The competing essays shall be typewritten or printed, and shall bear no mark revealing their authorship ; but instead of the name of the author, there shall appear on each essay a motto, and accompanying each essay shall be a sealed envelope containing the name of the author and bearing on its outer surface the motto of identification. No envelope is to be opened by the Committee until a decision has been reached as to the most deserving essay, and the other essays have been returned to their respective owners. The Committee shall have authority to reject and return all essays in case none has been found worthy of the Association medal. Competing essays must be in the hands of the Committee not later than March 1, 1900. For further information address any member thereof.

We have received from Prof. Zehender, formerly of Rostock, now of Munich, a circular letter, of which the following is a free translation. If the aged professor were not so well known (and so well beloved) a figure among the fathers of ophthalmology, we might find it desirable to say something here of the very large and important place he has occupied among us for nearly half a century. We trust he may have many happy years before him, and the OPTHALMIC RECORD tenders him its best wishes and kindest regards. At the same time we welcome to the editorial ranks his very able successor, Prof. Axenfeld:

"To the readers of the *Klinische Monatsblätter für Augenheilkunde*: With this (the December, 1899) issue of the *Monatsblätter* I desire to say farewell to the readers of the journal, and to relinquish the editorial pen to stronger and younger hands. Thirty-seven years ago (December 15, 1862) I laid before my confrères the prospectus of my intended work, and asked not only for their advice and criticism but for their help and support. With a grateful heart I still hold fresh in my memory all those—many of them now resting beneath the sod—who, during this long period, have faithfully and energetically supported me in making of the *Monatsblätter* a permanent addition to ophthalmology, in whose ministrations every reader might take a part. How far this purpose of mine has been fulfilled, it is, of course, impossible for me to say, but in any event I trust that my pleasure and satisfaction in this editorial undertaking has been reflected in the readers' minds. From this time forward Prof. Th. Axenfeld of Rostock, who has in past years been of very great assistance to me in the conduct of the *Monatsblätter*, will alone have complete charge of the journal. To him I would like to have addressed all manuscripts, exchanges, etc."

THE OPHTHALMIC RECORD

*A MONTHLY REVIEW OF THE PROGRESS OF
OPHTHALMOLOGY.*

VOLUME IX.

CHICAGO, MARCH, 1900.

NO. 3. NEW SERIES.

ORIGINAL ARTICLES.

CLINICAL AND HISTOLOGICAL STUDY OF A MELANOTIC SARCOMA OF THE CHOROID, WITH RECURRENCE OF THE GROWTH IN THE ORBIT FIVE MONTHS AFTER ENUCLEATION OF THE EYEBALL AND ONE EXTRA-SCLERAL MASS.*

BY G. E. DE SCHWEINITZ, A.M., M.D., and J. DUTTON STEELE, M.D.
PHILADELPHIA.

Illustrated.

Certain interesting features attach themselves to the clinical history of this case of sarcoma of the choroid, which we desire to relate in connection with a description of the macroscopic and microscopic specimens.

Herman S., aged 36, a butcher, presented himself for treatment to one of us (Dr. de Schweinitz) on the 10th of May, 1899.

History.—There is nothing of importance in the patient's general clinical history, nor in that of his family. At the age of six he acquired convergent strabismus, and the defective vision associated with that condition was noted. There is no history of injury to his eye and none of morbid growth in the patient's immediate family. Five years ago he consulted an ophthalmic surgeon, and was told that there was a growth in his left eye and that the eyeball ought to be enucleated. He declined to follow this advice, and also similar advice given about three years later, *i. e.*, on

* Specimens presented to the Pathological Society of Philadelphia December 14, 1899.

the 14th of August, 1897. It is probable that at both of these examinations the media were still clear, and that the growth was visible to the ophthalmoscope. He was driven to seek help in May, 1899, on account of severe pain, which had been growing worse during the past year.

Examination.—The vision of the right eye, after the correction of a high hypermetropia, was 6/9. The optic disc was congested. There was faint perivasculitis and slight superficial choroidal disturbance.

The vision of the left eye was *nil*; the bulbus was prominent, that is, slight exophthalmos was present; there was no bruit and no limitation in the movement of the eyeball. The iris was congested and adherent to the lens, which was cataractous. Large swollen episcleral vessels crossed the globe, especially at the inner side, and the ciliary zone was intensely injected. The tension was +2.

The patient was informed that enucleation was imperative, the diagnosis of intraocular growth in the glaucomatous stage being only too evident, while the exophthalmos indicated the presence of extra-scleral nodules.

On May 12, 1899, the eyeball and one large densely pigmented mass which was imbedded in the upper portion of the orbit were enucleated at the Jefferson Medical College Hospital. These growths were placed in a 5 per cent solution of formaldehyde, and after hardening divided, one-half being reserved for macroscopic and the other for microscopic examination.

The patient made a rapid recovery, leaving the hospital on the fifth day after operation, and a month later was fitted with an artificial eye. The orbit continued to be perfectly healthy until the early portion of September, when a slight swelling was noted in its upper and inner portion, causing some oedema of the surrounding tissues. This swelling gradually increased, and a month later had developed into a large mass, which so filled the upper part of the orbit that it was not possible longer to insert the artificial eye. The patient was advised to submit to immediate exenteration of the orbital contents, but could not make up his mind to permit this operation until three weeks later, at which time the orbital cavity was packed with the secondary nodules and the patient suffering violent pain in the head.

On the 27th of October, 1899, the entire contents of the orbit were enucleated, together with the periosteum, in a single mass, which was composed almost entirely of a collection of densely pigmented nodules. It was found that the floor of the orbit had been eroded so that the antrum was open, but itself not yet involved by the growth, while on the inner

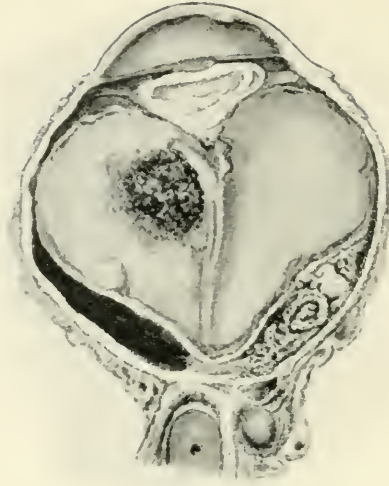


FIG. I. Macroscopic appearance of the choroidal sarcoma—flattened growth or so-called cake-like form.

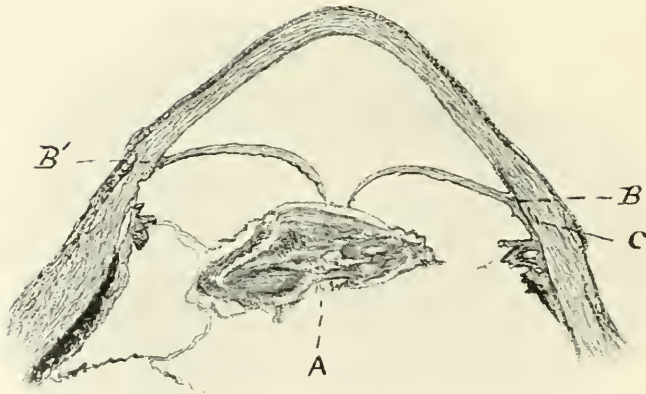


FIG. II. Occlusion of the angle of the anterior chamber by adhesive inflammation of iris base, B and B ; Schlemm's Canal, C.; remains of cataractous lens, and the adherent iris, A.

side the ethmoid region had been perforated, and communicated in a softened track with the sphenoid. All suspicious tissue was removed, and the cavity packed with iodoform gauze. The patient, with the exception of slight constitutional disturbances dependent upon the absorption of iodoform, made an uninterrupted recovery, leaving the hospital on the thirteenth day. Thus far there has been no return of the growth, although it is too much to suppose that this will not sooner or later occur.

Macroscopic Examination.—The eye measured 25 mm. in its vertical and 23 mm. in its horizontal diameter. The neoplasm is seen to occupy the posterior third of the eyeball in the form of a flattened growth extending 15 mm. to the right of the optic nerve entrance and 13 mm. to its left, the width of the growth being respectively 4 and 3 mm. In other words, the growth springs from the choroid, and is somewhat circular in arrangement, surrounding the optic nerve entrance, but not approaching quite to it; that is, instead of the ordinary knob-like or spheroidal form, the growth has assumed this flattened, or, as it has been called by Mr. A. Hill Griffith, cake-like shape. One detached nodule, just posterior to the lens in the anterior portion of the vitreous, 6 by 5 mm., is evident. The part of the growth to the right of the optic nerve is mixed white and black, the section being not unlike Italian marble, while that upon the left side, as well as the separated portion, is densely brown-black in color. The retina is totally detached, and extends in a narrow band from the optic nerve entrance to the posterior portion of the lens. The lens itself is partially cataractous, and to it is attached completely the thickened and infiltrated iris. The cut surface of the optic nerve is slightly yellowish in color, and near its center contains a small pigment spot. On each side of the optic nerve are extra-scleral nodules, that upon the right, closely in contact with the nerve at the posterior surface of the eyeball, being 1 cm. in length and 5 mm. in width, while that upon the left is 4 mm. in length and 2 mm. in width. (Fig. I.)

The nodule found in the upper portion of the orbit at the time of the primary enucleation was a densely brownish-black mass, 2 cm. in length and 18 mm. in width, and only slightly, or practically not at all, adherent to the surrounding orbital tissue. The recurrent growth was a mass the size of the cerebellum, and not unlike it in shape, was closely invested by the periosteum, and on section was seen to be composed of three lobules, separated by fibrous trabeculæ. The main body of the tissue is of a densely brown-black color, and evidently repeats in structure the smaller nodule previously described.

Microscopical Examination.—The eye was imbedded in celloidin, and

sections were cut and stained with Delafield's hematoxylin and eosin. The *cornea*, in so far as its anterior epithelium, anterior elastic layer, and substantia propria are concerned, is normal. The posterior elastic layer is somewhat uneven and detached from the cornea, while the endothelial layer lining the anterior chamber is thickened, with proliferation of its cells.

As the epithelium from the cornea passes over the corneo-scleral junction it becomes very much increased in thickness, and beneath it the veins are greatly distended and surrounded by a brightly-staining, small-celled infiltrate, evidently the representatives of the distended blood vessels which were noted crossing the bulbus prior to the enucleation.

The *iris* is typically bombé, thickened and infiltrated with small cells, pigment cells, and pigment granules, and is attached in a complete posterior synechia to the capsule of the lens, the attachment itself being composed of a similar mixture of small cells, pigment grains, and pigmented cells. The iris-base is closely adherent to the angle of the chamber, which is absolutely occluded, affording thus a typical example of the adhesive inflammation in this region, which prevents filtration and causes the glaucomatous stage of intra-ocular growths. (Fig. II.)

The *ciliary body* and *ciliary processes* are flattened and atrophied, and on the right side between the ciliary body and the pars ciliaris retinae is a narrow, spindle-shaped band of densely pigmented neoplastic tissue composed of cells like those presently to be described. The narrowed end of this deposit gradually merges into a strip of unaffected choroid, beyond which the second focus of sarcoma gradually develops in a large spindle-shaped area, reaching almost to the optic nerve entrance.

The *growth* is very deeply pigmented by brownish granular pigment, some of which is contained in the cells and some in the intercellular substance. The cells of the tumor are mostly small spindle-shaped ones with oval nuclei, but there is also a considerable number of large spindle-shaped and round cells, with large deeply staining round nuclei, and also smaller round cells with similar nuclei. These cells are seen especially about the smaller arterioles, where they are massed together about the vessel and present the appearance of a perivascular sarcoma. From their position and appearance it appears most probable that they have arisen from the perithelium of the artery. It is only the arteries with true walls that have these surrounding masses of cells. There is a delicate intercellular substance between the cells that stains faintly with eosin, and a very delicate reticulum of connective tissue running through the tumor, but in no place does this attain an amount sufficiently large to be consid-



FIG. III. General microscopic appearance of the growth, showing pigmented cells, non-pigmented cells surrounding blood-vessels without walls, or with only a layer of endothelium surrounding the blood stream. Arteries with true walls do not appear in this section. (Zeiss' Ocular 8, obj. 16 mm.)



FIG. IV. Section of the optic nerve showing infiltration with sarcoma-cells, A, and central artery of the retina, B, filled with pigment granules and pigment bearing cells. Some of the cells appear black in the reproduction, as if they were pigmented; only those cells inside of the vessel were pigmented. (Zeiss' Ocular 8, obj. 16 mm.)

ered a stroma. The blood vessels are fairly numerous. In many places they lack true walls, and are contained in a single layer of endothelium. In other places they have true walls, and are surrounded by the cylinder of cells already noted. In none of the sections do the walls of the vessels appear to be infiltrated by the growth. (Fig. III.)

Upon the opposite side there is the same adhesive inflammation of the base of the iris and occlusion of the anterior chamber, with atrophy of the ciliary body and ciliary processes, but no neoplastic deposit in connection with the ciliary body. Further on begins a similar flattened mass of sarcoma, less pigmented than upon the opposite side. The description already given of the cellular elements, intercellular stroma and blood vessels which constitute the growth applies equally well to this portion of the neoplasm, which differs from the other only in the smaller quantity of pigment.

In the *vitreous chamber* are vitreous shreds, pigment granules, round and oval pigment cells, and numerous blood corpuscles caught in fibrinous prolongations.

The sections do not show the *optic entrance* nor the *retina*, which, as already described, was completely detached, and is contained in the half of the eyeball devoted to macroscopic study.

The fibrous septa separating the nerve bundles of the *optic nerve* are markedly thickened. There appears to be no change in the optic nerve so far as its nerve elements are concerned, but its connective tissue framework is smartly infiltrated with numerous round cells, with large round nuclei and comparatively little protoplasm, which are identical morphologically with the tumor cells. These cells do not occur in masses, but are scattered quite regularly and thickly through the fibrous tissue of the nerve. They are not representatives of the ordinary increase of the neuroglia nuclei, or of the nuclei of the interfascicular connective tissue, but may be regarded as neoplastic elements, or, in other words, there is a sarcomatous infiltration of the nerve. Precisely similar cells in much greater quantity fill the intersheath and the arachnoidian spaces. The growth in the choroid immediately adjacent to the nerve is not as considerable as it is farther out. In none of the sections examined can a connection be traced from the tumor to the optic nerve. (Fig. IV. A.)

The *central artery of the retina*, which is well seen in cross-section, is completely filled with a brownish homogeneous substance in which are imbedded numerous variously shaped and sized pigment grains and many round cells packed with pigment granules. Exactly similar pigment-bearing plugs and cells are visible in some of the smaller vessels of the

optic nerve sheath and of the tissue adherent to the sclera. Elsewhere among the blood corpuscles contained in many of the arterioles are cells of medium size, and usually round, that contain the previously described brown pigment, evidently of the same character as that in the tumor. As before stated, the walls of these vessels are not infiltrated by the growth. The fact that these cells usually have irregular nuclei and occur singly and not in clumps makes it probable that they are leucocytes or mastzellen which have taken up the pigment, and that they are not sarcoma cells. Where this taking up of the pigment occurred does not appear. (Fig. IV. B.)

The *extra-scleral nodules*, closely attached on each side of the optic nerve to the posterior surface of the sclera, repeat in structure the intra-scleral neoplasm, except that they are much less pigmented, and consequently one is able better to distinguish the cellular structure.

Microscopical Examination of the Orbital Mass.—This consists almost entirely of a more or less pigmented cellular structure with scant intracellular substance, in which the large spindle-shaped cell predominates, either lying as a spindle or appearing in cross-section as an oval or a circle. Some of the cells are little or not at all pigmented, others are beginning to show the deposition of pigment granules, while still others are entirely infiltrated with the brownish-black pigment. Here and there through this mass of tissue are areas of small brightly staining cells. The blood vessels which exist are simply wall-less channels, and no pigment cells are visible in the blood of the vessels.

From this description it would seem that the tumor should be described as a polymorphous-celled sarcoma springing from the choroid, and involving the optic nerve and orbit.

We desire to call attention to the following interesting clinical and pathological features:

1. The somewhat prolonged first stage of the growth, that is, the period before opacity of the media and glaucomatous symptoms arose, which lasted two or three years, perhaps even longer. While this first stage has been prolonged to five years, it usually is completed in six or eight months.
2. The unusual form of the sarcoma, which, instead of appearing as a spheroidal or knob-like mass, is flat and cake-like.
3. The characteristic lesions at the angle of the anterior chamber, which so perfectly explain the pathogenesis of the glaucomatous stage.
4. The dissemination of non-pigmented sarcoma cells through the connective tissue framework of the optic nerve and in the intersheath.

5. The presence of pigment-bearing cells and pigment inside of the vessels in the blood-stream without lesions of the vessel walls, cells which suggest somewhat sarcomatous tissue, but which more probably, as already stated, are mastzellen which have picked up the pigment outside of the vessels and carried it with them into the blood-stream.

PROFUSE RETRO-CHOROIDAL HEMORRHAGE AFTER IRIDECTOMY FOR CHRONIC GLAUCOMA.*

BY F. C. HOTZ, M.D.

CHICAGO.

Hemorrhages after iridectomies for glaucoma are not infrequent, but very different in kind. Blood patches in the retina and blood effusions into the anterior chamber occur very often; they are speedily absorbed, and have no effect on the results of the operation.

Quite different, however, is the result if the hemorrhage occurs from a larger vessel in or behind the choroid. The bleeding then is very profuse and persistent, causing the extrusion of the lens and vitreous and the loss of the eye. This form of hemorrhage, fortunately very rare, may occur during or directly after the operation, or within the following day; it cannot be foreseen, and its occurrence is beyond our control. I wish to remark that I refer here to hemorrhages in primary, acute and chronic glaucoma, excluding the so-called hemorrhagic glaucoma as belonging to the secondary glaucoma group; for here hemorrhages precede the glaucoma symptoms.

Priestly Smith, in his article on glaucoma in Norris and Oliver's "System of Diseases of the Eye," alludes to these hemorrhages among the accidents of the operation. As instances of profuse bleeding during and directly after the iridectomy may be mentioned the cases of Nagel and Dufour.

In Nagel's case,† directly after the incision and before the iris was excised, the eye became exceedingly hard, and in a few minutes the lens and vitreous were expelled, followed by profuse hemorrhage. Dufour reported a similar accident at the International Ophthalmological Congress in Edinburgh in 1894. The operation was a normal iridectomy; as he was examining the eye to see if the angles of the coloboma were well

* Read before the March meeting of the Chicago Ophthalmological Society.

† *Klinische Monatsblätter*, 1869.

replaced the incision gaped, the lens was expelled and a profuse hemorrhage ensued.

In the case I now wish to report the hemorrhage occurred almost twenty-four hours after a perfectly smooth iridectomy for chronic glaucoma. The tension was only moderately high, the media were perfectly clear, and the ophthalmoscopic examination did not reveal any alterations of the vessel walls in the fundus. The hemorrhage was as unexpected and ushered in by the same symptoms as those formidable hemorrhages which sometimes occur after a perfectly normal cataract operation.

Mrs. W., 63 years old, anæmic and very nervous, had gradually lost the sight of her left eye during the past two years. One year ago an oculist pronounced her case glaucoma, but for some reason declined to operate, and prescribed daily instillations of eserine. When she first came to me the pupil was contracted to a pin-hole, so as to render an ophthalmoscopic inspection impossible, but the tension was nevertheless decidedly increased. Four days later, November 30, 1898, the pupil was still smaller than that of the right eye (which appeared normal in every respect); but a drop of cocaine dilated it within a few minutes without affecting the tension. Shallow anterior chamber, clear media and a typical glaucoma excavation, the margin of the disc showing H. 1 D. and the floor of the excavation M. 3 D.; arteries small, veins slightly enlarged, no pulsation; vision reduced to perception of hand. Inasmuch as the sight of the eye was irretrievably lost and the patient had no marked discomfort I saw no reason for urging an operation, and decided upon watching the eye under the moderate and restricted use of eserine.

But when during December and January the patient repeatedly complained of attacks of pain in the eye and left side of the head, which were accompanied by an appreciable increase of tension, and when I learned from her physician that she was wearing herself out by constantly worrying about her eye, I thought an iridectomy was warranted in order to relieve the tension of the eye as well as the patient's mind. The operation was performed under chloroform at 2 o'clock on January 24, last year; the excision of the iris was smooth and complete; there was no bleeding, and the tension was decidedly reduced. The patient recovered from the anæsthetic without nausea, and passed a very comfortable night. During the morning she felt occasionally a darting pain in the eye; at noon she was suddenly taken with the most violent pain in the eye and head, accompanied by a nervous chill, nausea and vomiting. I was at once notified by telephone of what had happened, and was at the bedside of the patient at 1 o'clock. When I removed the bandage I

found the lens on the dressing and half the vitreous outside of the wound, and when this was removed the rest of the vitreous was extruded with portions of the retina and choroid and clots of blood. The nausea and headache subsided within two hours, but the bleeding continued for three days. My first thought was to urge the immediate removal of the eye; but both her daughter and physician fearing the most serious results from the shock such a proposition would have upon the patient in her low nervous state, begged me to postpone the enucleation as long as in my judgment it might be done with safety for the other eye. I yielded to their entreaties, and under strictly antiseptic dressings and the use of cocain the wound healed, and the blood within the eye was gradually absorbed, so that by the end of February the anterior chamber was clear and the iris plainly visible; the pupil and the coloboma were filled with a fibrinous membrane. The tension, which had been very low, gradually rose to nearly normal, and the tenderness of the eye slowly but steadily subsided. Since last May the eye has been entirely free from redness and tenderness, perfectly comfortable, but it is somewhat reduced in size.

I have, of course, watched over the other eye with the greatest anxiety, and I am glad to state that up to this time its central vision, its field of vision, and the ophthalmoscope have not shown the least change from the first examination.

SNOW-BLINDNESS.

BY S. MITCHELL, M.D.

Oculist and Aurist to St. James Mercy Hospital, Oculist to the Erie Railroad.

HORNELLSVILLE, N. Y.

Illustrated.

A gentleman who has been a resident of this city for many years, and who spent eleven months of the year 1898 in the vain endeavor of attempting to woo the fickle goddess among the gold fields of Alaska, has recently written a book that is published under the title of "Experiences of Gold Hunters in Alaska." In it he relates many thrilling incidents that befell him and his companions while sojourning in this cold and inhospitable region.

I was much interested in what he has to say of his experience with snow-blindness; also of the aboriginal method which he was forced to adopt for its prevention. For the purpose of obtaining the accompanying photographs, he very kindly loaned me the identical eye-protector

which he wore whenever the occasion demanded during his stay in Alaska. It is made from a solid piece of spruce wood. Of its general make-up, and the way it is worn, the two cuts speak more graphically than words. I append what this writer has to say of his experience with snow-blindness and eye-protectors:

"One day while the sun was shining brightly upon the newly fallen snow, over which I was pulling my loaded sled along up the trail, I was suddenly attacked with snow-blindness. I was assisted back to the tent, and for two days suffered terribly from it, when I was able to resume work.

"It was no uncommon thing to see men taken back to their tents by their comrades, unable to see anything. All sorts of glasses were used as a protection, but in spite of any and all these, scores of men were stricken by it. The suffering from it is intense; the pain resembling that caused by the strongest fumes of freshly grated horseradish, and the only way we found any relief was by the liberal use of witch-hazel extract. We had happily provided an abundant supply of this in our stock of medicines, and it proved of inestimable service. That which afforded us the most protection was wooden goggles, the patterns for which were taken from those worn by Indians. These were whittled out of a piece of wood, fitting closely around the eyes, and with no glasses at all; but in the place of glasses were very small openings to see through, the inside being colored black. A projection like the visor of a cap extended over them, which was also colored black on the underside to shade the eyes. The mechanical skill of the makers of these goggles was varied. Some of them were ungainly affairs, weighing half a pound or more, while others were thin and light and beautifully carved."

Although, coming from an unprofessional source, the preceding is of some interest to the ophthalmologist, since actual experience has proven that the only device that effectually prevent this distressing malady, which so frequently afflicts those who elect to travel over the dazzling fields in the lands of perpetual ice and snow, is not, as nearly all the best authorities on ophthalmology assert, a pair of dark smoke-colored glasses, but rather wooden goggles made something after the plan of pin-hole spectacles.

Nettleship in "Diseases of the Eye," on page 268, in connection with what he has to say on the subject of "Functional night-blindness (endermic nyctalopia)," says: "Snow-blindness (or ice-blindness) is essentially the same disease, with the addition of congestion, intense pain, photophobia, contraction of the pupils, and sometimes of conjunctival ecchymoses.

"These peculiarities doubtless depend chiefly on powerful and prolonged stimulation of the whole retina, leading to congestion of its own vessels and those of the choroid, and subsequently of the whole eyeball; something may also be due to the effects of the reflected heat upon the conjunctiva. Snow-blindness is effectually prevented by wearing smoke-colored glasses."

In "Stellwag on the Eye," page 766, under the head "Anæsthesia Optica," snow-blindness is also spoken of in connection with night-blindness, or, as this writer designates it, "Endemic Hemeralopia."

On the subject of snow-blindness this world-renowned writer on ophthalmology says: "Snow-blindness is a very common occurrence in men as well as domestic animals who run over the snow and fields of ice among the mountains in bright sunlight without having any protection to the eyes from the dazzling reflection. It is characterized sometimes by a rapid, and again by a gradual, darkening of the visual field, which lasts as long as the person affected remains in such inhospitable regions without protection to his eyes, but disappears as he descends where there is no snow, or if the eyes be protected by some material, e. g., black crepe or dark glasses."

Juler, in his work "Ophthalmic Science and Practice," on page 226, says: "Snow-blindness, which is sometimes experienced by persons who have traveled over extensive tracts of snow, presents the same functional derangements as the night-blindness just mentioned, but there is usually congestion of the conjunctiva, with pain and photophobia. It is prevented by the use of deeply tinted glasses."

Noyes, in his book "Diseases of the Eye," mentions superficial keratitis as an accompaniment of snow-blindness, and cites a case with this complication which he cured by use of the galvano-cautery and a weak bichlorid solution. Furthermore, he mentions for protection the use of "shades, goggles, veils, etc."

Fuchs' "Text-Book of Ophthalmology" incidentally refers to snow-blindness when speaking of conjunctivitis due to traumatism. I was unable to find any reference to the subject whatever in the work recently published by Norris and Oliver, "System of Diseases of the Eye."

These wooden goggles devised by the Indians of Alaska, and doubtless worn by them since time immemorial, once more attests the everlasting truth of the adage, "Necessity is the mother of invention." I think, however, that the story recently related about the forty thousand cattle on the Russian steppes who wear smoke-colored spectacles during six months of the year to prevent snow-blindness will have to be retold, and

in which the Russian bovine is made to appear in public wearing wooden goggles of the pin-hole pattern, instead of the smoke-colored spectacles spoken of in ancient lore.

Perchance the whole forty thousand are at this very moment surrounding the domicile of the philanthropic but misguided veterinarian oculist who performed the refraction work for them, clamoring to have their spectacles changed.

FATIGUE FROM THE EFFORT TO MAINTAIN BINOCULAR SINGLE VISION.

BY GEORGE J. BULL, M.D.

PARIS, FRANCE.

When we consider the various symptoms of which our patients complain, and endeavor to attribute each of them to its proper cause, we are obliged to admit that much of the fatigue of the eyes and much of the general disturbance of the nervous system is in many cases due to the difficulty of maintaining binocular single vision. The patient, however, seldom recognizes that he has a difficulty in using the eyes together until with the help of his physician he learns to observe carefully and to analyze his symptoms. The physician, on the other hand, finding that the correction of refractive errors relieves his patients, often fails to appreciate the fact that the difficulty has been one of maintaining binocular single vision, and that the glasses have given relief chiefly by making it easy for the eyes to work together.

The first cause of the difficulty is often a difference in the form and size of the images perceived by the two eyes, the consequence it may be of ulcers which have deformed the cornea or of other forms of refractive error. When this difference is great and insuperable the patient is apt to allow one of the eyes to deviate. He thus enters the class of strabismus cases, ignores, it may be, the image received by the deviating eye, and having renounced all effort to see binocularly, ceases to feel fatigue. But in other cases, and it is to these that I venture to call the attention of the Congress, binocular single vision is habitually maintained, but at the expense of a fatiguing effort and not with the ease characteristic of eyes which are normal.

A difference in the refractive error of the two eyes uncorrected by glasses often leads to a difficulty of accommodation, for the focusing effort most suitable for one of the eyes will not be precisely that required

for the other. As a consequence of this we might expect to find an unequal distribution of energy in the external ocular muscles which commonly act in harmony with the muscles of accommodation. It is a matter of common observation that when the refractive error is different in the two eyes, there is also some anomaly of the ocular muscles. It is in these cases that the phorometer, the Maddox rods and other tests made, while the patient looks at two images of a distant object without the aid of his natural impulse to single vision, show that one eye tends to take a position higher than its fellow or to deviate to one side.

It is true that a tendency to deviation, or, in other words, a heterophoria, may exist in eyes which are not subject to fatigue, but the tests for heterophoria are nevertheless of great value, especially when we have other evidence of muscular inefficiency.

In my opinion it is not enough to consider carefully the nature of the patient's symptoms and the degree of heterophoria; it is even more important to determine his power of binocular fixation, and the facility with which under varying circumstances he can maintain it. For this purpose I know of no instrument so useful as the stereoscope. In a paper read before the French Society of Ophthalmology in 1898, and also in a paper read at the meeting of the British Medical Association in 1899,* I described a ready method of measuring the amplitude of convergence with the Holmes stereoscope and with a stereoscope of my own design, and I pointed out the fact that with these instruments we may not only determine the tendency to deviation, but demonstrate that there sometimes exists an incoördination of the ocular muscles.

On the present occasion I do not propose to discuss the importance of the various tests by which we determine the degree and kind of muscular inefficiency, but rather to consider what statements on the part of the patient may be useful in the diagnosis of the real nature of the difficulty.

It may be remarked at the outset that patients are not apt to make clear statements of their case without the help of a physician familiar with the subject who encourages them by careful questioning.

For the sake of clearness I will speak of the case of one of my patients, a woman of over thirty years of age, who had been troubled all her life with pain about the eyes and distressing headache.

The patient had binocular single vision habitually. She was not conscious that she had ever seen double, but on various occasions mentioned certain phenomena which indicated that there had been irritating

*"Le Stéréoscope comme moyen de diagnostic dans les troubles de motilité oculaire."—*Bull. Soc. Franc. d'Ophtal.*, 1898, and *The Ophthalmic Review*, September, 1899.

diplopia, although she did not recognize it. For instance, she told me that for years the altar lights in Catholic churches had annoyed her very much; they confused her, they seemed to be unsteady, to waver and to change position laterally.

It was not until after she had made experiments in my consulting-room in seeing candle lights, single and double, that she recognized that her confused sensations while looking at the altar lights were simply the result of diplopia and of the effort to correct it.

If she looked for any length of time steadily at the face of a person, or at any object, she had what she called a "cross-eyed feeling" or confusion, which later examination showed to be the consequence of crossed diplopia.

Sudden changes of light were exceedingly disagreeable to the patient, because the change of illumination increases the difficulty of fusing images. The sudden inrush of daylight when the curtains are opened in the morning is as provoking in this respect as going from the light into a darkened room.

The imperfection of binocular single vision was shown also in the occasional loss of the perception of the third dimension. At the head of a staircase all the steps seemed to extend in the same plane as the landing, and the patient had the habit of never descending a staircase without first feeling for the top step with her foot or with her parasol.

She would never look closely at any object, or allow a person to come very near her, but would draw back, for she felt that her eyes "would become crossed" (that is, would deviate outwards) if she looked at anything too near her.

This brings us naturally to speak of such occupations as reading, writing and sewing. The patient could hardly thread a needle, for whenever she winked she lost sight of the eye of the needle and passed the thread to one side of it. She had to give up sewing altogether, because she had, as she expressed it, "to set the eyes to make them come into place and see the stitch." The effort this called for caused general uneasiness and great irritability.

There is no doubt that in such cases systematic efforts are made to maintain binocular single vision, and that many devices are resorted to of which the patient may be quite unconscious. For instance, while reading or writing my patient felt every few minutes as if the eyes crossed and then went back instantly to the proper position. She would feel that she lost a word and would find it by looking at another part of the page, and then back to the place where the word ought to be. This

is undoubtedly an example of the recovery of binocular fixation by the device of stimulating the fixation muscles, by momentarily changing the direction of the eyes. The change was made so rapidly that if she were reading aloud no one would observe an interruption in the reading. As another example, I may mention that when the patient was speaking to anyone she never looked steadily at their eyes, but glanced very quickly from one eye to the other, then to the forehead, then to the mouth, and finally would glance downward and up again at the eyes. She was sometimes dimly conscious that it would give her still greater relief to rest the eyes on a distant object, but feared to do this lest she should be thought inattentive.

In looking from an object before her to another far to the right or left, she was careful to turn her head slowly, fixing one or more objects as they passed the median line, until the desired object was reached. If she failed to take these precautions, it was difficult to see the object when she came to it, and she had to resort to a further artifice to remove the confusion. This way of turning the head and not the eyes was a habit from childhood, and there can be no doubt that the difficulty of seeing and the confusion she spoke of had to do with diplopia; for subsequent experiments showed that troublesome diplopia was apt to occur when she looked far to the right or left. These examples are sufficient to show that great efforts were made to maintain binocular single vision, and efforts made so continuously must necessarily be the cause of serious fatigue to the patient. For years she was scarcely ever free from a slight pain over one of the eyes and at the back of the head. Reading increased these pains and brought on a sense of tension in the eyes and head. In order to understand better the patient's difficulty, it may be well to consider her own words: "No matter how deeply interested I am," she says, "at the end of half an hour's reading, and frequently sooner, I am disturbed by increased pain in the eyes and at the back of the head. I usually ignore this, however, and continue reading. But in a few minutes, oppressed by a slight sense of suffocation, I raise my head quickly, feeling I must take a deep inspiration because there is smoke in the room, and on looking around there seems really to be smoke all about me. Distant objects are dim, and I cannot distinguish the hands of the clock directly in front of me. If I go on reading after this, these symptoms increase, and are accompanied by slight nausea. If, however, I stop reading about this time, the symptoms quickly disappear; but if I continue, on the contrary, for a length of time, a violent headache will be

the consequence and the pain will extend down the back on both sides of the spine."

When the pain at the back of the neck was troublesome, examination showed that the muscles passing from the shoulders and spine to the occiput were rigid and swollen, and showed tenderness upon pressure. The same was found to be the case in other painful parts when the size and position of the muscles permitted their examination. When the pain was not too severe, gentle massage relieved it; more violent movements tended, on the contrary, to increase it. The electric current also often relieved the lesser pain in a few minutes. Taking all her statements together, I am inclined to infer that the ocular distress was accompanied by manifold symptoms of the nature of tension or spasm. She noted, for example, that she frequently held her teeth clenched and drew her toes up in her shoes when the eyes were troubling her most.

The sense of slight suffocation, oppression and general distress could be attributed to rigidity of the muscles of the chest, for it was best relieved by massage of that region.

The patient said that after reading for some minutes, or when trying to see in a relatively dim light, she felt as if somebody had clutched her by the throat, by which I understood her to indicate a muscular spasm in that region.

The sensation led the patient to stretch the neck in various ways and to yawn, and it passed off quickly when the ocular irritation was removed.

All the organs of the body being in a healthy state, there could be no doubt that the irritation which brought on and increased the general muscular spasm was propagated from a central source of irritation in or around the eyes, and the question naturally suggests itself whether the ocular pain was not also produced by spasm.

The dimness of vision observed by the patient on looking up from her book might have been attributed to the disturbance caused by lid pressure on the cornea, but it was noticed that she always held her book in a good position while reading, so that the lids did not rest on the cornea over the pupillary area. This cause of dimness of vision being excluded, I am led to consider whether the trouble may not have been the sign of ciliary spasm or cramp.

Another phenomenon noticed in this case may help to elucidate the subject. The patient often observed in the theater when the lights were lowered that she suffered from pain in the eye and at the back of the head, that she was oppressed by a slight sense of suffocation, and that

objects were seen as if through smoke. The same thing happened on entering a darkened room or church, but the most interesting fact observed at these moments of oppression, while the pain lasted and the vision was dim, is that her glasses, which under ordinary circumstances improved her distant vision, now seemed to obscure it, and she saw much better when she took them off. This would make it almost certain that at these times there was spasm of the accommodation, for no other condition that I know of could momentarily increase the refraction and render the convex glasses *de trop*. This opinion is further strengthened by the fact that other patients complain sometimes of not being able to see with their glasses in the evening or when the light is dim, and that the glasses thus complained of are convex glasses used to correct manifest hypermetropia.

I suspect that cramp of the muscles of accommodation sufficient to give a sense of tension and pain in and around the eye may occur without making a very noticeable change in the refraction. The physician is careful to conduct his examination of refractive errors in such a way as to avoid everything that may provoke spasm or hypertension of the ciliary muscles, but in spite of his precautions he often gets the complaint of a sense of tension, and evidence of other disturbances which to my mind may be best explained by the assumption that ciliary spasm has not been altogether avoided.

It may be remarked with regard to the disturbing effect of a darkened room, that the insufficient illumination adds to the difficulty of fixation, causes frowning and increase of tension in the external ocular muscles, and the stimulus thus sent through the third nerve may set up spasm of accommodation. Disturbance of the muscle of accommodation is often associated with disturbance of the muscles of fixation. We have an example of this in the confusion and diplopia which not infrequently occur when we call upon the two eyes to work together after an examination which has fatigued the accommodation of the eyes examined separately.

To return to my patient: tests with the Maddox rods while she looked at a candle placed five meters distant showed crossed diplopia, the eyes diverging about 3° , and the left eye becoming the lower of the two. The cover-test also showed inefficiency of the interni. Upon the principle already indicated I then proceeded to use the stereoscope for the purpose of determining the degree of ease or difficulty with which the patient could use the eyes together.

My test cards used with the stereoscope have each two circular discs,

one for the right eye and one for the left, and a scale enables me immediately to determine the degree of convergence when the discs are properly fused at any distance.* By these tests I learned that the patient had a singular difficulty in keeping the discs fused, and that she was unable to fuse them except under low degrees of convergence. The terms ordinarily applied to such cases, namely, insufficiency of the interni, exophoria, or exotropia, latent divergent squint, etc., seem to express inadequately the patient's condition, for the stereoscope showed it was difficult for the eyes to work together in any position. There appeared to be, in fact, a veritable incoördination of the ocular muscles. Moreover, when test cards were used with discs more widely separated, requiring a slight degree of divergence in the eyes in order that the discs should be fused, fusion was again maintained but for an instant, and the eyes would converge too much, and then go off in a spasm of divergence. It was noticeable, also, that when the eyes diverged most the left eye became lower than the right.

It would appear, therefore, most probable that there was hypertension of the ocular muscles, and it was shown beyond the possibility of doubt that when the externi were called upon to make an effort they went into a state of spasm.

The stereoscopic exercises affected her in exactly the same way as reading, but more quickly and more disagreeably. She frequently felt as if the left eye were doing all the work. If she persisted in trying to fuse the discs of the stereoscopic cards, her spirits became depressed, and she looked haggard and miserable.

The use of glasses which corrected the difference in the refractive error of the two eyes, the use at other times of stronger convex glasses to relieve the strain of accommodation and the use of prisms to correct hyperphoria seemed to have no effect in making stereoscopic exercises easier.

The difficulty of fusing the cards was the same with or without glasses; and it appeared, also, that when cards were used which called for no effort of fusion, but only one of observation as to the relative position of the images perceived by the two eyes, the confusing and exhausting effect was equally great.

When, however, I placed the two small black discs, not on a plain white card, but upon two photographs representing the stereoscopic view of a distant landscape, the two dots having the same interspace as that

*See "Le Stéréoscope." *Bull. de la Soc. Fr. d'Ophthalm.*, 1898, and the *Ophthalmic Review*, September, 1899.

between the chief objects in the two photographs, it was remarked that it was easier to maintain binocular fixation on such a stereoscopic card while letting the eyes wander from one part of the picture to another than it was to keep up fixation on the small black discs on a white ground.

The patient told me she had never even in her early childhood been able to look with comfort at stereoscopic views. It was noticeable, however, that when I gave her a stereoscope free from optical error, and views taken with that admirable instrument, the verascope, she was able to look at them with pleasure and without fatigue.

To sum up, the stereoscopic tests showed that it was the effort to fix and to maintain fixation which gave trouble, and that efforts to fix with optic axes parallel or slightly divergent were quite as perplexing as those made when the eyes were converging. The tests showed, also, that imperfections in the instruments used, quite imperceptible to the casual observer, added notably to the difficulty of keeping the eyes together.

This leads me naturally to consider the nature of the relief afforded this patient by the glasses which fully corrected her refractive error, namely, a myopic astigmatism in the right eye and a hyperopic astigmatism in the left. Without these glasses the images perceived by the two eyes were of different size and shape; with them the images were approximately equal, and therefore more easily fused. With the glasses the eyes required equal efforts of accommodation, and therefore acted more in harmony one with the other.

The glasses were a great comfort to the patient, and seemed, as she stated it, to make things steady and keep them from slipping. They made distant lights much less perplexing, and lessened the difficulty of looking from omnibuses and railway carriages, and in general in looking at passing objects.

On several occasions, after doing exercises which called for strong action of the external recti muscles, the patient suffered for twenty or thirty minutes from crossed diplopia. It is remarkable on these occasions how the double images were instantly fused when the patient put on her glasses. The diplopia would return when she took them off and again disappear when she put them on. By bringing about harmony in the accommodation of the two eyes, the glasses seemed to act as a stimulus so as to mask the inefficiency of the internal recti. The patient's power of overcoming abducting and adducting prisms while maintaining binocular single vision of a distant candle-flame was notably better with the glasses than without them.

The patient often complained of a "cross-eyed feeling" when she took off the glasses, and at such times the eyes were apt to deviate outward if she looked at anything very long.

The glasses relieved the constant pain in the back of the head and gave considerable freedom from headache, but the pain returned whenever the eyes were used in stereoscopic exercises or in reading or writing.

It was most remarkable that although the glasses made the patient comparatively comfortable in looking at distant objects, they gave her hardly any relief in using her eyes upon objects near or distant which required her to maintain the act of fixation.

Tonic treatment, the rest cure, douches, massage and electricity had all failed to enable the patient to use her eyes as other people use theirs. Neither stronger convex glasses nor prismatic glasses lessened the difficulty of reading.

Under these circumstances, the exophoria, the lower position of the left eye, the spasm of the externi and the inefficiency of the interni, led me to make a tenotomy of the external rectus, and a partial advancement of the capsule over the internal rectus of the left eye. The operation was followed within a few days by remarkable improvement in the symptoms.

One of the first changes that the patient noted was that when she closed her eyes to go to sleep they seemed at perfect rest, whereas for many years before they had felt as if they were constantly crossing and rolling about. It had been her habit from childhood to try to quiet the eyes by pressing the lids with the fingers, and, in fact, it had never been possible to obtain relief from the ocular spasm by closing the eyes, inasmuch as the efforts of fixation appeared to go on uninterruptedly.

A day or two after the operation she found she had to make no effort to pull the eyes in, or to keep them from diverging. She had no trouble in looking quickly from one object to another in any position whatever. Distant lights appeared now to be perfectly steady. Stereoscopic exercises were done with perfect ease, and showed a normal amplitude of convergence.

Within a month after the operation the patient could read or sew for several hours at a time without fatigue, and there was no blurring of the sight upon looking up afterward. Traveling in railway carriages and looking at moving lights ceased to make her nervous and irritable.

Sudden changes of light, such as those noticed upon entering a darkened room, or when the curtains are first opened in the morning, no longer caused any confusion of the sight.

Sixteen months have passed since the operation, and none of the old difficulties has returned. There has been no sense of tension or pain in and around the eyes or at the back of the head. The muscles all over the body have regained their normal tone, and the glasses which formerly seemed indispensable have been altogether laid aside.

What happened, in my opinion, was simply this: the history of the patient shows that the external recti so overbalanced the internal recti that a constant and fatiguing effort was required to keep the eyes from turning outward. This led to momentary incoördination of the ocular muscles and cramp-like contractions, which set up irregular muscular and nervous action in other parts of the body and brought on a general neurasthenia. The essential part of the operation, a tenotomy of the external rectus muscle which was chiefly at fault, corrected its overbalancing action, thus relieving the strain of the internal recti and the accompanying disturbance of the muscle of accommodation. The source of irritation in the ocular muscles being removed, harmony of the ocular movements was restored, and the symptoms depending upon the propagation of the irritation to other parts of the body were relieved.

The interest of this case lies not only in the fact that it directs attention to the far-reaching consequences of ocular spasm, but also that it indicates the advantage that may be obtained for purposes of diagnosis by the minute analysis of those subjective sensations of the patient which are very often dismissed as being unimportant or misleading.

A BRIEF CLINICAL STUDY OF CONJUNCTIVAL ULCERATION.

BY H. McI. MORTON.

MINNEAPOLIS.

Illustrated.

It is the writer's impression :

- 1st. That conjunctival ulcers are more frequent than authors generally state them to be.
- 2d. That this misconception is due to infrequency of diagnosis.
- 3d. That many inflammatory conditions diagnosed as simple conjunctivitis, acute catarrhal conjunctivitis, etc., are but attendant symptoms of an existing and probably undiscovered area of ulceration upon the bulbar or palpebral conjunctiva.

4th. That, in certain cases, conjunctival ulcers are an important factor in causing pterygium.

5th. That, with care, the diagnosis is not difficult, and the treatment, when applied direct to the ulcer, more satisfactory in its results than when the ulcer is treated as a diffused inflammation of the conjunctiva.

6th. That when compared with corneal ulcers, in which the subjective symptoms are oftentimes more marked than the objective signs, the reverse holds good to a very noticeable and a very interesting degree.

Since the introduction of fluorescein as a diagnostic agent in ophthalmic practice, I have observed more frequently the presence of ulcerative processes upon the bulbar and palpebral conjunctiva. While the conjunctival ulcer is not as well defined by this agent as the corneal ulcer, the fluorescein is, nevertheless, practically as useful in these cases, and renders the diseased area easily demonstrable.

Where there exists little more than a denudation of the epithelium, the stain does not define as well as in cases where the ulcer is deeper. In corneal ulceration the stain is quite as distinct in slight ulceration or loss of epithelium, due to burns, as in deeper ulcerative processes of the cornea, which is not true in conjunctival ulceration. This difference in readiness to take the stain in superficial conjunctival and superficial corneal ulceration is noticeable to the clinician and is in a measure due to the sharp contrast offered by the clear corneal tissue to the fluorescein stain. It is true, however, that the conjunctival ulcers do not "take" the stain quite as well.

By the use of this agent in acute inflammatory processes of the conjunctiva an ulcer may be discovered, thereby showing the attendant conjunctivitis to be rather one of the manifestations than the disease itself. This is important, as it leads to a direct treatment of the ulcer, instead of a general treatment of the symptom, thus causing less pain and resulting in more rapid resolution.

In corneal ulceration I rarely observe more than one diseased area, except in those intractable cases of chronic, pernicious conjunctivitis, with its usual attendant multiple ulcers near the upper limbus, while in conjunctival ulceration we frequently have to deal with two ulcers, the bulbar conjunctiva being more frequently involved than the palpebral.

Patients presenting themselves with ulceration of the conjunctiva have usually a marked injection of this membrane, without much swelling, and with some attendant discomfort, usually not amounting to pain. The absence of the pain contrasts very sharply with its notable presence in typical ulcers of the cornea. This difference I believe to be due to the

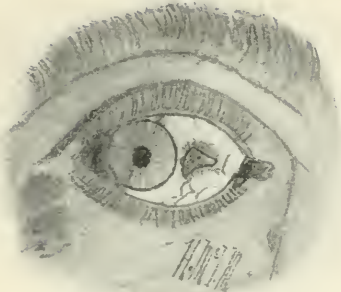


FIG. I.

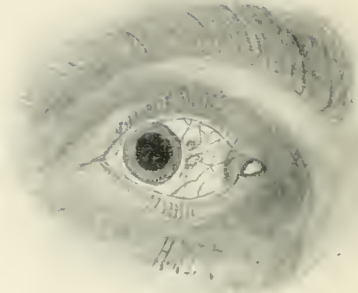


FIG. II.



FIG. III.

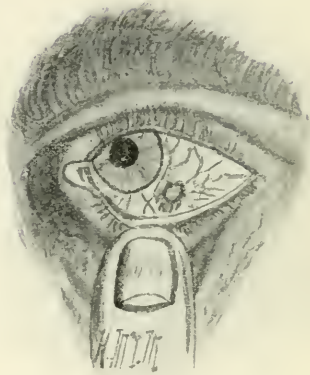


FIG. IV.

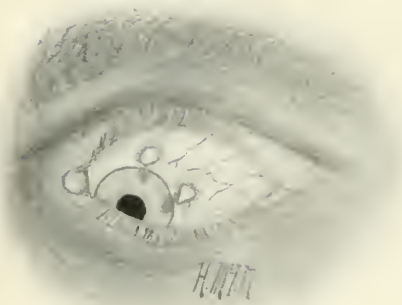


FIG. V.



FIG. VI.

character of the conjunctival tissue. Iwanoff has shown that the round cells, in their migration from the corneal margin to the inflammatory area, pass along the course of the nerve filaments, and thinks the marked pain in corneal ulceration and phlectynular keratitis is due to the pressure of these cellular elements passing between these filaments and the somewhat dense and unyielding corneal tissue. The plastic nature of the conjunctival tissues may thus, in the light of Iwanoff's studies, explain the immunity from pain in ulcerative disease of the conjunctiva, for we know that the nerves are numerous and form rich plexuses in this membrane. For the same reason we have less photophobia and lachrymation than in corneal ulcers.

Pterygium a luxation of the conjunctival tissue toward or over the limbus cornea is, I am convinced, in a certain class of cases—I am not prepared to say how large a class—brought about by the cicatricial processes accompanying the healing of an ulcerative condition of the conjunctiva. I do not confound this with the so-called pseudo or cicatricial pterygium. In the latter a concomitant chemosis of the conjunctiva has applied this tissue to the corneal ulcer. In the former the process starts in the conjunctiva without any necessary attendant chemosis. We have here a true pterygium, in which the growth is continuous from point to base, and not a mere incarceration of the conjunctiva, as in pseudo pterygium.

The solution I employ is:

℞ Fluorescine gr. iv.
Liq. Potass. f. 3 ss.
Aq. Distl. q. s. f. 3 iii.
M.

After the area has been defined by this agent and a drop of a 10 per cent solution of cocaine instilled into the eye, the ulcer is directly and carefully penciled with a 1-100 solution of formalin daily. The patient is directed to use internally hot fomentations for a period of exactly five minutes every half-hour, and given a 2 per cent solution of boracic acid to instill after each hot application. Calomel in small doses (1/10), until two grains are taken, followed by an aperient water or saline, usually sulphate of magnesia, with rest of the eyes and a pressure bandage between the hot applications, constitute the treatment.

These patients usually recover in from one to two weeks.

The six drawings accompanying the article are instructive, as they show the common forms assumed by this disease.

In Case I a small but typical pterygium formed in the process of healing and invaded the limbus. This has occurred in two other cases.

Case II had a clear specific history, with sore throat and enlarged cervical glands, and took four weeks under the routine local treatment, together with mercurial inunctions, to cure, although the ulcer had not a marked specific character.

Case III showed a typical syphilitical ulceration of the conjunctiva, with clear specific history, and with other existing specific symptoms.

Case VI showed two small areas of ulceration on the palpebral conjunctiva, resulting from the breaking down of abscesses due to measles in a man 26 years of age. While syphilis plays its part in this form of eye disease, the usual factor, I am persuaded, is a slight abrasion of the epithelium with small foreign particles, with subsequent infection from material present in the cul-de-sac. These not uncommon cases may be distinguished from the much less frequent specific ones by the lack of induration about the margin of the ulcer, by absence of specific history and symptoms, and by the much greater readiness to undergo resolution.

The cases presented much the same symptoms, and as the treatment was practically the same in all except the specific cases, it is useless to report them in detail. The ulcers are commonly 1 mm. from the cornea, and in size are about 2 mm. to 4 mm.

Fluoresceine should be employed as a routine measure in all inflammatory conditions of the conjunctiva, in order that we may clearly distinguish between a true conjunctivitis and a conjunctivitis which is merely an attendant symptom upon the small area of ulceration. Direct treatment to the diseased area will be more satisfactory, as well as a more precise, and thus a more scientific, procedure.

A CASE OF FRACTURE OF THE ORBIT, WITH UNUSUAL SYMPTOMS.*

BY GEO. E. BELLOWS, A.M., M.D.

KANSAS CITY, MO.

The patient, A. G., is a locomotive fireman, age 26, single, American by birth. When I first saw him on the morning of November 15, 1896, he gave the following history:

About 2 o'clock on the night previous, while shaking the grate of his locomotive, the shaker-bar slipped, and he lost his balance and fell to the

*Read before Midland Ophthalmological Society.

left, striking his head against the handle of a coal-pick. The handle struck him just below the left eye, on the inferior margin of the orbit. Some considerable pain and discoloration were the only results immediately apparent. He bathed his face in cold water and continued his work.

Seen the next morning, the following condition was present: The left eye very prominent, its motility somewhat impaired. The inferior rectus of the left eye was partially paralyzed, and the eye turned upward. There was considerable ecchymosis in the lower lid, and the orbital tissues were very emphysematous. There was a subconjunctival hemorrhage on the outer side of the cornea, not extending back into the orbit—that is, the posterior border of the hemorrhagic patch could be seen, showing that it was not due to a hemorrhage into the orbit working its way forward.

Vision in the right eye, the uninjured one, 20/20, in the left 20/70, not improved by glasses. Pupil normal. The refractive media all clear, no hemorrhage into the vitreous or retina, and no abnormality apparent in the fundus.

There was marked numbness and anæsthesia of the skin over the left superior maxilla, the left side of the nose to the median line, the upper lip, upper jaw and tongue, all on the left side and to the median line. No paralysis of motion in the face.

The treatment was by rest and cold applications only. By the next morning the swelling and emphysema were considerably reduced. The patient said that when he first got up they had about disappeared, but when he blew his nose the tissues all puffed up again.

There was a point of excessive tenderness, pain on pressure, about three-fourths of an inch from the nose, on the left inferior orbital margin, and this was regarded as the seat of a fracture of the superior maxilla, extending back into the floor of the orbit and the infra-orbital groove, and involving the inferior rectus or its nerve and the superior maxillary branch of the fifth nerve, and opening into the antrum. Pressure on the nerve from effusion or hemorrhage was doubtless the cause of the paralysis of sensation, and the swelling and emphysema, which had nearly disappeared under cold applications, reappeared when the patient blew his nose, from air being forced from the nasal passages into the antrum and through the fracture into the cellular tissue of the orbit.

On the second day there appeared an unusual and interesting symptom. The patient complained of monocular diplopia in the left eye—*i. e.*, when the right eye was closed he saw double with the left. He was

questioned closely and tested with prisms and colored glass. No reason appeared for doubting any of his statements. The images seen were erect, displaced vertically, and of about the same intensity. At twenty feet the images of the candle were separated about two inches. At two feet they were nearer together, the edges nearly touching. When the patient was seen two days later this symptom had disappeared. It had been noticeable occasionally the day before, but not at all that morning.

L. V.—20/50, gradually improving to 20/30 in about a week. All the symptoms gradually passed off, and the patient made a complete recovery.

NYSTAGMUS OSCULATORIOUS VERTICALIS.*

BY W. P. MALONE, M.D.

WASHINGTON, D. C.

Lucy B., aged 35 (?), mulatto, of average intelligence, married, mother of eight children, all living, no miscarriages, applied at the Eye and Ear Clinic of the Woman's Dispensary, August, 1898, for relief from defective vision and dizziness.

She appeared to be a well-nourished, healthy woman, weighing about 145 pounds, and gave a good history as regards previous health, excepting that all of her upper and most of her lower teeth were decayed and broken off.

She stated that in January previous, when five months advanced in pregnancy, her vision began to fail, and everything she looked at appeared to "dance up and down," and this made her dizzy. She was very positive in her assertion that previous to January her sight had always been good.

Upon examination the eyes were observed to move rapidly up and down, the excursions being very short but very rapid. The movements of the eyes were not readily noticeable unless your attention was directed thereto, when it could be easily observed. Fixing the eyes steadily upon an object appeared to increase the oscillations. Examination with the ophthalmoscope revealed nothing abnormal except the oscillations. Field of vision normal. Vision 20/40 in either eye. +.75 D. S. gave 20/30, and these glasses were ordered. The ears were examined for inspissated cerumen, polypi, otorrhœa, or other trouble, and found normal. There was no history or evidence of syphilis, aside from the decayed teeth. No indication of any nervous trouble. Appetite good, bowels regular, sleeps

*Read at meeting of Washington Society of Ophthalmologists and Otologists, November, 1899.

well, and is nursing infant. In fact, with the exception of her teeth and eyes, she appears in perfect health.

I advised that she have all of her decayed teeth extracted, and ordered strychn. sulph. gr. $\frac{1}{30}$ after each meal, and a mild electric current to the muscles of the eye for ten minutes daily. Some of the teeth were extracted, and the treatment continued for one month without any effect upon the oscillations so far as I could judge, although the patient claimed that things did not dance so much. November 24, 1898, her vision with her glasses was $\frac{20}{60}$, due, I think, to the fact that she had accustomed herself to the oscillations. Still very dizzy, and head feels heavy.

The strychnia was continued, and pot. iodide, gr. x, three times a day, to be gradually increased, ordered and continued for two months or more. April 10, 1899, she reported: "I can see better, especially on clear days, and things do not dance as much as they did." August, 1899: "Eyes still give trouble, otherwise feel perfectly well." November 13, 1899: "I can hardly say how my eyes are; sometimes they are better, at other times they are bad." This is unquestionably a case of acquired vertical nystagmus of recent origin. I have been unable to assign any of the causes usually given. There was never any previous eye trouble. The cornea, iris, lens, vitreous, and fundus are normal. I realized that it might be a forerunner of some serious nerve lesion, but this, I think, we can eliminate after two years, and no symptoms developing. Ophthalmic literature furnishes many instances of disease of the eyes said to be caused by carious teeth, varying from slight conjunctivitis and photophobia to absolute amaurosis. I am not aware that a nystagmus has ever been attributed thereto. However, as I am unable to find any other reason, I must believe it a reflex trouble from the teeth—unless some one can assign a better cause.

CHLORETONE (TRI-CHLORTERTIARY-BUTYL ALCOHOL) IN OPHTHALMIC PRACTICE.

BY H. McI. MORTON.

MINNEAPOLIS.

After six months' observation upon the action of the drug chloretone I think that I may state that it has a distinct value in ophthalmic practice. This value lies in its antiseptic properties combined with a mild anæsthetic effect, and without affecting the pupil or the accommodation. This unusual combination of qualities renders the drug useful in two distinct ways at least: first, as a very desirable anæsthetic in the removal

of foreign bodies from the cornea; second, as a conservant to the various solutions used by the eye surgeon. As to the first of these indications, its markedly antiseptic properties and absence of mydriatic effect give it at once a value over cocaine. Furthermore, it does not possess the undesirable property of disturbing the corneal epithelium which cocaine possesses. It is only in this class of cases, however, that as an anæsthetic it will act as a substitute for cocaine, since this anæsthetic action is one limited to the superficial structures of the eye alone, for I have been unable to perform any operation upon the eye more serious than the removal of small particles from the corneal epithelium or superficial corneal layers. As these cases form a large class, however, did the drug possess no other value it would be worthy of a place in the oculist's armamentarium. When combined with cocaine the anæsthetic effect is markedly prolonged, an advantage after tenotomy and other ocular operations. In certain cases this combination of cocaine and chloretone will extend the period of anæsthesia to four or more hours.

It is in the second manner spoken of, i. e., as a conservant to other drugs, that I would especially recommend chloretone, and in one very particular instance, its combination with suprarenal extract. The latter drug is now used by every well-equipped surgeon in ophthalmic practice, and its tendency to rapid decomposition is well known. In summer a solution of suprarenal capsule is of value for a day or two at most, and the preparation of a new solution each day becomes an annoyance. I add about one drachm of the saturated solution of chloretone to six drachms of suprarenal capsule in watery solution (gr. x to $\bar{3}$ i), which keeps the solution for a convenient length of time and without fungus formation, or bad odor. The dilution of the atropine, eserine, and homatropine solutions has no noticeable effect upon their physiological action and prevents bacterial action. I have found the drug along the lines just spoken of great value, and the absence of any irritating properties, as are present in formalin and other antiseptics, places it, in my judgment, as a conservant to eye solutions *par excellence*.

Chloretone is a derivative of chloroform, occurring in the form of beautiful white needle-crystals which readily sublime. It is soluble in alcohol, ether, and acetone chloroform, but only slightly soluble in water. Dissolved in warm water to saturation it forms approximately a 1 per cent solution. This solution, *if injected*, has about the anæsthetic effect of a $2\frac{1}{2}$ per cent solution of cocaine, but when applied topically to the eye this anæsthetic effect is much less than such a solution of cocaine would produce.

It is markedly antiseptic, and if boiled water is used at the start it will need no further care. I have a bottle which has stood for months, and which is free from any germ action. Intravenous and subcutaneous injections of large doses in animals produces complete anæsthesia which persists from three hours to several days. An extremely large dose administered to a small dog produced profound anæsthesia for several days, and resulted in death. When used topically upon the eye I find anæsthesia begins almost immediately—within ten seconds—after the instillation of a saturated (1 per cent) solution. This is first complete upon the bulbar conjunctiva, and then upon the cornea. There is no mydriatic or myotic effect, and after careful tests I find that the drug has no influence upon the accommodation. As stated, however, its action is superficial when used in this manner, the eye not being operable for any but very minor procedures, such as the removal of foreign particles, the application of irritating astringents or caustics, etc. As a collyrium, in saturated solution, I prefer it to boracic acid in acute inflammatory conditions of the conjunctiva, and diseases of the lachrymal sac and lachrymo-nasal duct. In these cases it is clearly of value, having a more distinct antiseptic action than boracic acid, and at the same time being more sedative (in irritation of the conjunctiva relief continues for some hours after its instillation), a class of cases in which cocaine is often not desirable.

MUSCULAR ASTHENOPIA.

BY E. H. HAZEN, M.D.,

Late Professor of Ophthalmology, Iowa College of Physicians and Surgeons,
DES MOINES, IOWA.

Illustrated.

The diversity of opinion among oculists as to the importance, cause, and means of relieving the symptoms connected with the different forms of trouble under this head is a significant fact, and shows that there must yet be a great amount of investigation on this line before we can have a consensus of opinion.

The findings and means of correction of difficulties in the muscles are as slowly accepted by the general physician as were the necessities in errors of refraction. At this time half of the studious population is wearing glasses, but that there are as frequent defects in the adjustment of the moving machinery of the eyes is as well known to those who have paid attention to the matter as there are defects in the adjustment to the

known laws of light, and such eyes require the aid of science to enable them to meet the severe use that modern civilization demands. This has been somewhat reluctantly admitted by the profession, but is now better recognized.

There is not so great a percentage of prisms prescribed in cases of asthenopia as formerly, and there is a cry of "halt" in the clipping mania that possesses a few.

The writer of this paper wishes to add a contribution to this field of research—one which is the result of several years of thought and experiment. The importance of testing the balance of the ocular muscles in every case of eye-strain, and more especially the strength of each muscle, is conceded, and the necessity of correcting the refraction previous to the treatment of the muscles is concurred in. There is a very high percentage of persons who still have trouble in using their eyes after a careful adjustment of glasses is made, and who go from glass-fitter to glass-fitter seeking relief.

It is thought pretty generally among specialists that these troubles are from want of muscular balance in the ocular muscles. The method of testing the muscles, and the causes of disturbance, as laid down by prominent teachers in this line, and therefore the interpretation of findings, are taken exception to by the author of this paper. In testing, it is commonly directed that a prism, generally a strong one, be placed over one eye, and the two eyes directed toward a light twenty feet distant, and the patient told to overcome the diplopia. If the patient is unable to overcome this prism by fusing the double image thus produced, another one is substituted, and so the shifting from one of high degree to one of lower, and *vice versa*, is practiced until one is obtained the images of which the eyes are able to fuse. This process is the one generally followed in the treatment of these muscles. It is said by authors that several examinations are necessary to be made on different days to get at the truth.

The principle of this method of muscle exercise is out of character in gymnastics in general. Muscles in other parts of the body are appealed to by gentler gradations, and the innervation of the muscles is called upon, in proportionally rhythmic swells, for its power. It is more consistent, then, that the eyes have placed before them as much of a prism as they can easily correct, and then, under proper conditions and with short gradations of increase, pass a number before them until the full power of the muscle is obtained. It is found that fifteen degrees can sometimes be added to that which they were able to correct at the start. When examined in this way it is surprising what uniform



results are obtained on several repeated examinations, and therefore that which is secured in several examinations by the common method is obtained at the first sitting by this method. It is necessary that there be provided a steadiness of movement, a uniformity of intervals, and that the prisms be run in the same plane. These muscles are exceedingly quick in their action, and the innervation very susceptible to disturbance when they are put to their best effort.

The author of this paper believes that in the prosecution of this work writers have made too much of the errors in the anatomy of these parts, and have directed attention to want of symmetry, errors of measurement, and other so-called deficiencies, and emphasized efforts in mechanical adjustment, and lost sight of the nervous capability and its development. More investigation should be made, and more attention should be paid to developing the nerve force which nature brings to bear upon deficiencies that we consider in the light of human geometry and architecture. This might lessen the surgical procedure materially. The brain and its apparatus is still a mystery and a sealed book. The nerve force is measured only by amount of accomplishment of the muscle supplied by the nerve, and we are often surprised to see what a muscle can do under a stimulus when suddenly called upon. We are also having our attention awakened to many phases of empiricism practiced by those who, by different methods, blindly direct their efforts to the nervous organization of man. The causes for not being able to use the eyes to the extent of modern requirement should be looked for in the exhaustion of nerve force, and not so much in the line of incorrect measurements. These convictions have gradually been creeping upon the author since the spring of 1896, and this method of treating muscular asthenopia has been followed more or less since that time.

I have had an instrument constructed, which is named "Kratometer," by which the examination for heterophoria is made by the Maddox rod method, and the same instrument is used for obtaining the "duction." The prisms are placed in a bar, fifteen in number, and are passed in front of the right eye, which looks through a cup-shaped opening, and are slid through a slot, fixed to a standard, attached to a table to maintain steadiness. The left eye, looking through an eye-cup the same as the right, having a prism as strong as can be overcome, turned before it. In testing sursumduction, the prisms are increased in strength by $\frac{1}{4}^{\circ}$. Adduction in accommodation can also be examined by a near attachment. These prisms are passed up in speed by seconds, and the eyes will overcome them as rapidly, until the brain can no longer command the effort,

and the lights separate and sail away from each other. By this method in adduction, 9, 10, and sometimes 15 degrees will be added to the prism corrected at the start.

In the treatment of these weak muscles this procedure is repeated in like manner once every day for from five to seven times. It is surprising how quickly the reflex symptoms pass away. The average time to accomplish adduction of 50 degrees is four weeks, and long before this result is attained the asthenopia has disappeared.

That which is most contrary to what would be expected in the light of the teaching regarding the importance of the conditions of heterophoria, is that asthenopia is found in orthophoria with weak adduction, and pain is found in esophoria of 10 degrees, with adduction of 35 degrees, and both relieved by the development of the adducting power, and the first ending with esophoria.

As to permanency of cure, it takes time to ascertain the facts. It must be said that in many of the cases so treated, that after a year or two some of the symptoms begin to return, but I have others who have been well three years—free from all symptoms. I have of late supplied a nest of four prisms to use at home after finishing the office treatment for the purpose of keeping up the standard of duction. Time alone will tell the result of this additional treatment. It was at first thought that this exercise was developing the recti-muscle fiber, but the quick results obtained in the removal of orbital pains, and the peculiar conduct of the eyes under discipline, have led me to believe that I have been educating the innervation of the nerves. It seems as if the brain had forgotten how to apply the force, and that it required this elementary guiding to accomplish its former efforts.

The space allowed for this article will not admit further details, nor the citing of cases. Further investigation will determine whether the theories advanced on the results obtained are correct.

MYOPIC ASTIGMATISM.—E. S. Thompson lays down the following general rules for the treatment of myopia and myopic astigmatism: 1. Give total spheric correction, or as near to it as possible, and insist on its being worn all the time. 2. Look carefully for low degrees of astigmatism and correct fully. 3. In high degrees of astigmatism, give the total correction, so as to educate the retina, if possible. (Abstracted by the *Jour. Amer. Med. Asso.*)

CORRESPONDENCE.

THE EFFECT OF PRISMS ON THE APPARENT DISTANCE OF OBJECTS.

TO THE EDITORS OF THE OPHTHALMIC RECORD:

DEAR SIRs: In Dr. E. V. Allen's work, "The Science of Higher Prisms," page 60, occur these words: "Our knowledge or estimate of the distance of any object from us depends largely upon the effort put forth by the internal rectus muscle in directing the vision toward it. The prisms change the amount of effort required, and *hence*, when the bases are *inward* objects appear *nearer* than they are, and when *outward* *farther* away."

Less effort is required of the internal recti to fix an object with prisms before the eyes—*base in*—than without them. Why, then, does the object not appear *farther* away—if our judgment regarding its position is influenced by the sense of muscular adjustment necessary to bring the impression to the maculæ? Maddox, page 20, "The Clinical Use of Prisms," after defining *adducting* and *abducting* prisms, continues: "The former (adducting) when vision is binocular, and without diplopia, by increasing the necessary convergence of the eyes, make objects appear *nearer* than they actually are, and the latter made them appear *too far* away. Does this not seem to be a contradictory statement?

W. F. WHITE.

Marysville, Ohio.

REPORTS OF SOCIETIES.

SAN FRANCISCO SOCIETY OF EYE, EAR, NOSE AND THROAT SURGEONS.

JANUARY MEETING.

The President, Dr. W. A. Martin, in the chair.

Dr. A. Barkan presented to the society a young man who while chiselling iron three weeks before had been *injured in the right eye by a flying chip from his hammer*. He was seen by Dr. Barkan two hours after the accident. The wound was found at the inner limbus, and was about $\frac{1}{8}$ inch long. There was beginning iritis, but no hemorrhage into the anterior chamber. On dilating the pupil the lens was found to be clear except at its extreme edge. The foreign body was plainly seen in the vitreous, and was of considerable size. Vision amounted to ability to count fingers at ten or twelve feet. It was decided to use the Haab magnet. It had always been Dr. Barkan's custom to extract the foreign body, if possible, through the original wound when this is in front. In the present case, however, he concluded to try Knapp's method by meridional incision. Here decided difficulties presented themselves, for after making the incision to the inner side of the globe, it was found to be quite difficult to get the eye turned outward so as to get the tip of the magnet in the proper line of action. The conjunctiva was therefore replaced and the magnet applied in front. The bit of steel was now drawn along the posterior surface of the lens to the inner lip of the original wound, where it became entangled in the iris. It was finally extracted through a small corneal incision, and proved to be a bit of steel $\frac{3}{16}$ inch by $\frac{1}{16}$ inch in size. The lens is now clear, but there are some opacities in the vitreous, and some pericorneal injection, but the eye promises to recover. An interesting ophthalmoscopic appearance is present. There is a distinct tear in the retina and choroid visible near the disc, showing that the foreign body has here impinged and rebounded into the vitreous.

Discussion.—Dr. F. B. Eaton had been interested in Dr. Barkan's

observation that when the foreign body is in the vitreous it is first drawn against the posterior surface of the lens, and thence around the lens to the wound of entrance. Dr. Wm. E. Briggs of Sacramento, in a recent letter to the *Occidental Medical Times*, had observed the same phenomenon in the clinic of Hirschberg. Dr. Eaton had had a peculiar case of injury. A man presented himself, stating that some weeks before when wood-chopping something had struck one of his eyes. The eye showed all the symptoms of cyclitis, but a careful examination discovered no wound or scar of a wound in either cornea or sclera, nor could any evidence of one be obtained from the patient. There was a very small hypopion. The eye was treated for a few days with no result. One day, on bringing a small magnet of the Hirschberg pattern close to the cornea, a scarcely perceptible movement of the pus on the floor of the anterior chamber was observed. On placing the pole of the magnet upon the cornea, and moving it about, the movement of the pus was unmistakable. An incision was made at the limbus below, and a small bit of steel withdrawn, after which the eye promptly recovered.

Dr. Martin had had a case with Dr. Philip in which a piece of metal was seen in the anterior chamber. An opening was made and the magnet used, but there seemed to be an envelope of hyaline membrane around the body, which prevented direct contact with the magnet.

Dr. Martin presented a man with *extensive ear lesion*, and said: "The case I show you this evening is supplementary to the one shown by Dr. Pischl at our last meeting. If you remember, in Dr. Pischl's case there was a perforation or fistulous opening in the upper and posterior wall of the auditory canal about 5 mm. from the annulus, and supposed to lead to the mastoid antrum. In the case I show you this evening the upper and posterior wall of the canal is missing, and the attic and mastoid antrum are merged into one large cavity—a Stacke operation performed by nature. The trouble commenced before Mr. R.'s remembrance; he is now 22. I saw him first nearly a year since, and at that time this cavity was filled with detritus analogous to cholesteatoma, but easily removed with the syringe, and with a little treatment was brought to its present condition. Running across and cutting the cavity into two unequal parts, a larger upper division and a smaller one, is a band of tissue. This I thought corresponded to the annulus tympanicus, and for the sake of rendering the cavity more easy to clean, I cut it through with scissors, expecting it to contract; but it did nothing of the kind, but promptly adjusted itself and grew together again. It is extremely sensitive, as is the whole cavity. When wiping out the cavity with a cotton

mop, the patient complains of an extremely unpleasant sensation, not altogether one of pain. It is also apparent from the twitchings and spasms of the facial muscles, that the facial nerve is close to the surface and easily irritated, although, aside from a slight drawing of the mouth, one could not say that there was any serious lesion of this nerve. The ear is absolutely deaf.

The left ear, when I first saw him, was filled with granulations, and he was wearing a patent ear drum. I had him discard this for a cotton drum dipped in an antiseptic oil, and with a little treatment have destroyed the granulations, and you see quite a large portion of the membrana tympani has formed about the head of the hammer which is still present. His hearing in this ear without the artificial cotton drum is: Watch on contact (normal 1 meter) and low conversational voice at 1 meter. With the drum in place, watch is heard at 25 centimeters, and conversational voice at 4 meters, so that he can follow his occupation, that of clerk in a lawyer's office, with comfort."

SECTION ON OPHTHALMOLOGY.

COLLEGE OF PHYSICIANS OF PHILADELPHIA.

Meeting January 16, 1900. Dr. George C. Harlan, Chairman, in the chair.

Dr. S. Lewis Ziegler exhibited a card on which was printed a *Compact Arrangement* of the well-known collection of *Jeager test-types*, together with a bar of notes for musicians and a symbol which represented the needle's eye for the seamstress.

Discussion.—Dr. Norris inquired how Dr. Ziegler arrived at the dioptric measurement of the letters used in this test, whether by the vertical diameter of each letter or by its practical equivalent. Dr. Ziegler replied that it was mainly by the latter method.

Dr. Ziegler also presented a patient in whom the eyeball had been preserved after an injury that caused a 12 mm. linear rupture of cornea and sclera by *coute coup*, and produced prolapse of iris and ciliary body with extrusion of lens. The prolapsed iris and ciliary body were excised, and a deep scleral suture inserted at sclerocorneal junction. Little reaction followed. Although vision was almost destroyed, a non-pathogenic eyeball was secured—a result preferable to enucleation in a workingman.

Dr. A. G. Thomson exhibited a girl, aged 14 years, with well-marked *Persistent Pupillary Membrane* in both eyes. The pupillary membranes

are dense, opaque, dark brown in color, closely resembling the iris, and connected with the anterior surface of the iris in the region of the circulus iridis minor in each eye by filaments of apparently the same tissue, the remains of the obliterated arteries of intrauterine life. They are irregularly round in shape, and occupy almost the entire pupillary space of the undilated pupil. The eyes are myopic, 10 D.; R., amblyopic, $\frac{1}{100}$; L., $\frac{6}{80}$, and nystagmic. Lenses do not improve vision. The corneas are slightly nebulous from ophthalmia neonatorum—R., central; L., below center. Dr. Thomson stated that the patient must work for a living, and he desired the opinion of the Fellows as to the best surgical means that could be adopted to give her useful vision.

Discussion.—Dr. de Schweinitz suggested the removal of the membrane with the capsule from the pupil. This operation would develop traumatic cataract, which could be later treated by extraction of the fragments; in other words, he would treat the case as one of high myopia requiring operation. Dr. Ziegler had operated on a case by penetration of the membrane and capsule with a Hays knife. This produced a cataract that was absorbed. Dr. Randall proposed a linear extraction of the lens, as in cataract, but instead of the usual cystotomy he would endeavor to grasp the membrane with a forceps and lift it out. He believed that there was a congenital cataract beneath the membrane. Dr. Wm. Thomson remarked that when the pupil was small the threads were flexible, making division difficult. He thought discission should be done first, and after the absorption of the lens he would treat the capsular opacity by operation.

Dr. de Schweinitz reported a *Case of Blindness from Sympathetic Ophthalmitis, with Restoration of Vision by Critchett's Operation*, in a patient 53 years of age. The blindness had existed for about 20 months. A previous iridectomy and later iridocystectomy had been unsuccessful. After Critchett's operation, by which an oval clear pupil was secured, vision with a +12 S. was $\frac{5}{30}$.

Discussion.—Dr. Charles A. Oliver stated that he had successfully employed Critchett's and Story's operation for the laceration of the lens capsule and the evacuation of the lenticular contents in two cases of sympathetic ophthalmitis which had been considered as irremediably blind. Both were in young subjects, the most favorable type for the procedure, and both presented sufficient pupillary area to reach the lens material and incise the lens capsule without touching the tissues of the iris. In one case he had used a Knapp's knife-needle for the discission, while the primary drilling into the capsule with the evacuation of the lens material and the fixation of the capsule at the time of the discission were obtained

by an ordinary stop-needle. This case, in which an ultimate permanent vision of $\frac{5}{25}$ was obtained, required three separate operations. He considered the method to have a large degree of usefulness in special types of the disease.

Dr. de Schweinitz read the clinical histories of a *Series of Complicated Cataracts* which he had extracted and gave the visual results. Among the chief complications recorded were chronic granular lids, glaucoma, clonic blepharospasm, lateral nystagmus, detachment of the retina, high myopia, choroiditis, and calcareous semiluxated lenses. He also related the histories of two cases in which the nucleus of the lens had escaped into the vitreous during extraction. The one was followed by kind healing and good vision; the other, a semiluxated lens in the fluid vitreous, by an explosive intraocular hemorrhage five and one-half hours after the operation.

Discussion.—Dr. Hansell called attention to the omission from Dr. de Schweinitz's enumeration of constitutional and local causes for complicated cataracts of the mention of secondary and tertiary syphilis, and believed from his experience that it was essential to a good result that a syphilitic subject should undergo a course of mercury and iodids before the extraction of cataract was made, otherwise the operation would be followed by the formation of a pupillary membrane, closure of the coloboma, and gummata of the iris. Dr. Ziegler had operated for cataract in six patients suffering with granular lids and dacryocystitis with good results by inserting corneal sutures and by treating the eyes as he would open wounds—namely, without bandages and with ice compresses. In two cases he had employed the corneal suture. Dr. Harlan stated that authors differ as to what are really complications, and said that if all constitutional causes are excluded the published reports are only of selected cases.

Dr. C. A. Veasey reported a case of *Oculomotor Paresis following indirect violence*. The patient, a male, aged 30, fell from his bicycle while coasting and struck his *left* temple. He was bruised and stunned, but had no cerebral symptoms, such as nausea or headache. He continued his ride for an hour and a half and noticed that objects appeared “out of place.” On the following morning he had paresis of all the branches of the *right* oculomotor nerve. The visual acuity was normal and there was no disease of the media or eye-grounds. The accommodation returned, but the other symptoms improved but little under treatment.

Dr. Harlan reported the case of *Transient Real Blindness* in the person of a delicate and nervous woman, 23 years of age, who complained of loss of vision in the left eye of three days' duration. She said that a month

before there had been double vision in each eye, which lasted three weeks, and was followed by almost complete blindness in the left. The right eye was normal in all respects. In the left vision was reduced to counting fingers at four inches. A mydriatic had been used. The media was clear and the fundus was normal, but various prism and confusion tests failed to reveal any higher degree of vision than she had admitted. Three days later there was absolute monocular blindness. All attempts to produce diplopia by prisms failed, and the test suggested by Priestly Smith, and brought to the attention of the Section by Edward Jackson, was deemed conclusive of actual blindness. When the patient was directed to look at a flame, and a prism, base toward the temple, was placed before the blind eye, there was no deviation of either; when it was held before the right eye there was evident deviation of both eyes to the left, and recovery after removal of the prism. Dr. Harlan was particularly interested in this case because in a considerable experience with hysterical blindness he has met with only one other case in which he was unable to demonstrate that the blindness was not real.

Dr. Randall reported the case of a child of 10 months in whom he found *Double Optic Atrophy* from *Otitic Thrombosis*, with all evidences of its post-papillitic character, ascribed to "meningitis" occurring six months before. The history showed that no nausea, convulsions, nor paresis had been present to indicate true meningitis; that pain, tenderness, and swelling had been markedly present, most of the time, about the left suppurating ear, and involving with little adenitis the neck of that side. Except for the double exophthalmos, which had been extreme at the worst stage of the attack, "the meningitis was all on the left side." Thrombosis so usually follows such involvement of the cerebral sinuses with uniformly fatal result that he felt it important to record even so incomplete a history, as it bore out his claim that such conditions, if desperate in the extreme, were not necessarily hopeless.

HOWARD F. HANSELL,
Clerk of Section.

OPHTHALMOLOGICAL SOCIETY OF THE UNITED KINGDOM.

C. Anderson Critchett, F.R.C.S. E., President, in the chair.

Dr. Walter Edmunds, in reading a paper on *Experimental Exophthalmos and Enophthalmos*, remarked that there were three ways in which prominence of the eyes can be affected experimentally: (1) By acting on the sympathetic, either stimulating it or dividing it; (2) by the admin-

istration of certain preparations or drugs; (3) by operations conducted on the thyroid gland. With regard to the first, stimulation of the cervical sympathetic produces: (1) Prominence of the eye; (2) widening of the palpebral fissure; (3) at first increase and later decrease of the intraocular tension; (5) erection of the hairs of the head. Division of the sympathetic produces the opposite effect. Cocain is one of those drugs which produces proptosis, widening of the palpebral fissure, dilatation of the pupil and decrease in the intraocular tension. Cunningham has shown that feeding a healthy animal on thyroid extract produces similar results. The author then showed photographs of monkeys and rabbits both before and after feeding on this substance.

Exophthalmos after the administration of thyroid has once been observed in man by Beclere, where it appeared after excessive doses had accidentally been taken by a patient suffering from myxœdema. The third method of affecting the prominence of the eyes is by operations on the thyroid. Removal of the thyroid may produce either ex- or enophthalmos, but in the monkey usually the latter. Numerous lantern slides were then shown of animals in which this had been done, as well as drawings of animals in which the sympathetic had been divided.

The author summed up his results as follows: The discussion of these phenomena is particularly interesting in its bearing on the pathology and treatment of Graves' disease; the fact that the most important eye symptom of Graves' disease can be produced by the administration of thyroid preparations certainly suggests that the eye affection is secondary to the goitre. I have not tried the effect of division of the sympathetic in feeding with thyroid extract, but with the administration of cocain it diminishes the effect produced. It therefore suggests itself that the exophthalmos might be benefited by division of the cervical sympathetic, and indeed the operation has been tried several times in man. The results are said, however, not to be very satisfactory, at least so far as the general disease is concerned.

Mr. Lawford said he had reported one case of exophthalmos due to thyroid feeding; it occurred in a woman, aged 34, who had suffered from myxœdema for five years. She was treated with thyroid extract, and had greatly improved. Four and a half years later she had some recurrence, and was again put on thyroid, and this time she developed severe exophthalmos, but her subsequent history was unknown.

Mr. G. Mackay mentioned a case he had seen of enophthalmos following an operation on the glands in the neck, in which the sympathetic had evidently been cut or injured. He also had a case of extreme exoph-

thalmos, in which half the thyroid was removed, and a good result followed.

Mr. Jessup mentioned a case in which a fatal result followed division of the sympathetic.

Mr. Juler had seen in Paris a case of glaucoma in which the sympathetic had been divided. It produced many unpleasant symptoms without enophthalmos.

Dr. Brailey made some remarks, and Dr. Edmunds briefly replied.

Here follows a paper by Mr. Arnold Lawson on a case of *ciatrix horn growing from the cornea*.

The patient was a female child, aged 8 years, a hydrocephalic idiot. The history given was that about one year previously a white spot had appeared on the right eye, and that the eye began to project. Six months later a growth was first noticed on the right cornea, and this had constantly increased in size. Latterly a white spot had appeared on the left eye. On examination of the eyes, there was seen a large conical tuberculated excrescence protruding between the lids of the right eye. It was half an inch in length, and its base attached to the cornea, covering about four-fifths of its surface. The left cornea exhibited a yellowish infiltration just below the pupil over which the cornea was bulging; the anterior chamber was deep, the iris immobile, the tension slightly raised, and the eye quite blind. Both globes were anæsthetic, and there was considerable muco-purulent discharge from a chronic inflammation of both conjunctival sacs. The growth upon the right eye was accidentally detached a few days after admission into the hospital, and it was then seen to have been attached to the cornea at the apex of a central staphyloma which was left covered by a fleshy soft core which had formerly been embodied in the center of the growth. The cornea was entirely opaque, and the eye quite blind. After removal of the right eye a few days later, examination of the globe revealed a co-arct retina with evidences of chronic degenerative changes in all the various structures. The anterior chamber was completely abolished, the iris throughout its extent being firmly adherent to the back of the cornea, which was bulging centrally. The apex of the corneal staphyloma had evidently been the site of a large perforation which was closed by the fleshy granulations which formed the core of the growth. The growth itself measured $\frac{3}{8}$ inch from apex to base, and $1\frac{1}{2}$ inches round its base. The interior portion was soft and crumbling, but the external layers were hard and horny, and cut with difficulty. A wedge-shaped piece was cut away from the growth, and specimens cut and stained with carmine. The microscope showed that the external

layers consisted of several faintly fibrillated strata of a dense homogeneous nature. The layers occupied about one-quarter of the entire thickness of the walls, the rest being entirely composed of small nucleated cells, those most external being stratified.

Adopting Mr. Bland-Sutton's classification of human horns, this growth would be an example of a cicatrix horn, the rarest of all varieties of horn, and which had been usually found in connection with the cicatrices of burns and scalds. The probable etiology in this case was an overgrowth of granulation tissue closing the perforation in the cornea, and which, owing to an unhealthy condition of wound and eye, which was anæsthetic and atrophic, had become exuberant, simulating exactly the condition known as "proud flesh" elsewhere. By a process of accumulation and heaping up the granulations gradually formed a cap over the cornea, while the external layers gradually became stratified and horny from the pressure of new growth from the central core and by the action of the air. The nature of the growth was evidence that the corneal epithelium bore no share in its production, and discounted the possibility that it might be due to a huge crust of inspissated conjunctival discharges.

Remarks were made by Dr. Gruber, Mr. Treacher Collins, and Mr. Devereux Marshall.

Mr. Shears read notes of a *case of acute glaucoma following a single application of homatropine*. A woman, aged 52, came to the Liverpool Eye and Ear Infirmary in October, 1899, for reading-glasses. With her hypermetropia corrected her distant vision was nearly $\frac{2}{3}$ of normal. One or two drops of homatropine, four grains to the ounce, were put into the right eye. When she came again to the hospital, a week later, she had all the signs of acute glaucoma in this eye, and she could only just count fingers. Pain and vomiting and great loss of sight came on the same evening that the homatropine was used. Eserine and leeches were tried for two hours, but without benefit. Iridectomy was then performed, with the result that the tension and sight were quite restored in ten days, and have remained satisfactory up to the present. Mr. Shears was of opinion that no mydriatic should be put into the eyes of persons over 30 without careful consideration; that if homatropine were used, it would be well to instill eserine before the patient left the hospital; that cocain followed by eserine was usually quite sufficient for ophthalmoscopic examination, or the new pupil dilator, euphthalmine, would be found very satisfactory for this purpose. Very few cases were published of

glaucoma after homatropine, and the accident appeared to be very rare.

The following card specimens were shown :

Mr. E. E. Henderson : Microscopic sections of growth from the upper palpebral conjunctiva.

Mr. A. Q. Silcock : Persistent hyaloid artery arising from a central coloboma of the choroid.

Mr. W. T. Holmes Spicer : Detachment of the choroid ; primary optic atrophy associated with diabetes insipidus.

Mr. L. V. Cargill : Fibromata in eyelids.

Mr. Doyne (1) Peculiar appearance in cornea ; (2) extreme case of essential shrinking of conjunctiva ; (3) unusual case of striated keratitis.

Dr. Still : Infantile cerebral degeneration with symmetrical changes in the macula.

Mr. Juler : Case of pemphigus of the conjunctiva.

PURULENT OPHTHALMIA.—It is fortunately not common for physicians in general practice to meet with purulent ophthalmias, yet they do occur, and how to meet them is an important point. Frank Van Fleet briefly reports nine cases in which he was called in consultation. He advises, as a matter of prophylaxis, the use of vaginal douches, when there is any suspicion or knowledge of gonorrheal infection before child-birth. From birth he would use Credé's method of a 2 per cent. solution of nitrate of silver, and he gives instructions as to its administration. He believes that this drug in the eye is perfectly harmless even in strong solutions, however painful it may be, and there is no efficient substitute for it. The treatment of the first stage consists of this and the application of ice-cloths changed sufficiently often to keep them from becoming warm, and washing the eye with some mild collyrium to keep it free from pus. The danger is involvement of the cornea, and special care should be used to see that it is not injured. If involvement appears, cauterization is the best method, and if it goes so far as to produce bulging, it should be punctured as often as it occurs. Never abandon the case as hopeless. Many times the condition will terminate, leaving a more or less useful eye.

Abstracted by the *Journ. Amer. Med. Asso.*

NEWS ITEMS.

*Personals and items of interest should be sent to
Dr. Frank Allport, 92 State St., Chicago.*

OPHTHALMOLOGICAL headquarters of the American Medical Association at Atlantic City next June will be at Haddon Hall.

THE Western Ophthalmological, Otological, Laryngological and Rhinological Association meets in St. Louis April 7-9.

AMONG the Chicago doctors now studying in Vienna are Drs. Leicht and Snyder, who are studying the eye.

DR. A. FRIEDMANN, formerly of Berlin, and for a time connected with the New York Ophthalmic and Aural Institute, is now located at Colorado Springs, Col.

DR. GEORGE F. LIBBY, of Portland, Me., has gone to Colorado to test its climatic advantages, and probably to make it his permanent home and field of future practice.

THE last meeting of the Chicago Ophthalmological and Otological Society adjourned without transacting business in respect of the memory of Dr. E. L. Holmes.

DR. HAROLD GIFFORD, of Omaha, Neb., was in Chicago March 1st, and delivered a lecture for Dr. Casey Wood at the College of Physicians and Surgeons on "Eyeball Enucleations and Their Substitutes."

THE NEW YORK EYE AND EAR INFIRMARY is to be enlarged by the addition of a pavilion for contagious diseases.

CONVERSE speaks particularly of that form of choroiditis due to rheumatism, excluding that caused by syphilis. He thinks that examination of the urine will often aid in finding the cause of the trouble, and proper treatment for the constitutional condition will give relief.

AMONG other papers to be read at the next meeting of the Illinois State Medical Society will be the following: Dr. Allen T. Haight, Chicago, will present a paper on "Gonorrhœal Conjunctivitis." Dr. Wm. H. Wilder, of the Illinois Eye and Ear Infirmary, Chicago, will read a paper on "Syphilis of the Eye."

DR. M. BORYSICKIEWICZ, professor of ophthalmology at the University of Graz, Austria, died September 18, 1899, in his fifty-first year. He was formerly assistant at Stellwag's clinic in Vienna, and famous as a skillful operator. His investigations on the finer structure of the retina are well known.

DR. ELIZABETH SARGENT, daughter of ex-United States Senator Aaron Sargent, of California, and a well-known oculist of San Francisco, died in that city on February 6th. Dr. Sargent was for eight years oculist to the Children's Hospital. She was educated in ophthalmology in Zurich, and was an ambitious and capable oculist and an excellent operator.

A NEW ophthalmological society has been established in Denver, Colo. It meets on the third Tuesday of each month at the office of one of its members. It has no regular president. The member at whose office the society meets is the chairman for the evening. The secretary is Dr. E. W. Stevens. Since Denver has some twenty-five or more ophthalmologists, we shall expect some good work from their recent organization.

W. W. KEEN employs the following method in preparing the hands for a surgical operation: They are first thoroughly scrubbed in soap and water, and this is the most important part of their preparation—much more so than any chemical that can be used. The soap and water are then washed off in alcohol. Then a dram of chlorid of lime and an equal amount of sodium carbonate placed in the palm of one hand and softened sufficiently to make a paste. This is rubbed thoroughly into the arms and hands and introduced around and under the nails. The hands and arms are then washed with hot sterilized water and finally in bichlorid solution.

UNDER instructions from the trial judge a jury in the District Court of Lincoln, Neb., found Dr. Chas. W. Little, a practitioner of osteopathy, guilty of violation of the medical laws of the state. The jury reported recently, and Dr. Little was released on bail to appear later for sentence.

The jury was instructed that in deciding whether or not the defendant was guilty of practicing medicine without a license, it was not necessary that one should use medicine or drugs or practice surgery as the terms are commonly used and implied, but that if one professes to heal or operates for a remuneration by manipulation and rubbing, such fact would come within the purview of the law.

Dr. Little will at once appeal to the Supreme Court.

LIMITING THE OUTPUT OF DOCTORS IN RUSSIA.—The Russian government has grappled with the question of the overproduction of medical practitioners in a drastic manner peculiarly its own. By a recent decree of the minister of education the admission of first-year students by the several medical faculties throughout the empire is restricted to a fixed number. The University of Moscow is limited to 250, Kieff to 200, Char-kow to 175, Dorpat to 150, Warsaw to 100, Tomsk to 120, and Kasan to 100. The total number of first-year medical students in the dominions of the Czar must, therefore, not exceed 1,095. This number does not include the students of the St. Petersburg Medico-Military Academy, which is allowed to admit 250 first-year students.—*British Medical Journal*.

AN AMBITION for a new world's honor was shattered recently when Alexander Cameron, the blind philosopher of Yale, was obliged to leave college. Last week he fell into an open cellar, and received cuts on his head and face which may partially cripple him for life. He would have won the degree of doctor of philosophy in June—the first time a blind man ever mounted such intellectual heights in the history of the world.

Cameron was broken-hearted when he learned that he must give up his cherished hope, but the professors of the Yale Divinity School, where he has been studying, consoled him with a promise to allow him to pursue his studies at his home in Duluth, Minn., and submit his thesis in June for his doctor's degree.

It was said that Mr. Critchett usually diverted the attention of the patient during a cataract operation, by reciting passages from Shakespeare or some other poet in his inimitable manner. He almost invariably enchained the mind of the patient during the trying ordeal.

It will be remembered by those who have seen Dr. Agnew operate that he always soothed the agitation of his patient by a succession of kindly and encouraging remarks, such as "Steady, neighbor"; "You are

doing nicely, my good woman"; "Be patient a moment more and it will be all over," etc., etc. The attitude of these great operators is in striking contrast with some other operators, who actually cruelly bully and terrorize their patients into a condition of servile submission and quietude.

DR. ROBERT KITTO, of Racine, Wis., lost the sight of his right eye and sustained other injuries in a street railway accident February 16th. He was on a Wisconsin Street car, returning from the southern part of the city, when a car ran into a switch and he was thrown violently through the window of the car. A piece of the flying glass cut his eye in a terrible manner, and when the glass was pulled out the contents of the eye ran out on the cheek.

Dr. Kitto was removed to a hospital, and leading oculists of Racine and Milwaukee examined the eye, and said that it was totally destroyed and would most likely have to be removed. It is feared that the accident may injure the other eye, and leave the doctor totally blind.

The doctor had just returned from Hot Springs, Ark., where he had been for blood-poisoning treatment, which he contracted while operating, and narrowly escaped dying.

AT A recent meeting of the New York State Medical Association, Dr. Alvin Hubbell of Buffalo read a paper on *Etiological Relation of Auto-Infection and Auto-Intoxication to Diseases of the Eye*. He said that by auto-intoxication was meant a self-poisoning, whether by excess or retention of normal products, or by abnormal products generated in the body. Auto-infection, on the other hand, was a direct germ invasion. Uricacidæmia was probably an example of an auto-intoxication resulting from an accumulation of a normal product. An excess of the secretion of the thyroid gland was now thought by many to explain the condition known as exophthalmic goitre. Retinitis might always be regarded as the result of some poison circulating in the blood. Optic neuritis, both in its papillary and retrobulbar forms, was distinctly a toxic affection. He believed that sympathetic ophthalmia furnished another illustration of auto-infection or auto-intoxication, not in the sense that germs were transported from the injured eye to the sound eye, but in the sense that the uveal tract of the sound eye, by the lowering of its vitality through the extreme reflex and vasomotor disturbance kept up by the foreign body in it, so injured the other eye that it became a true poison, and induced a most obstinate and uncontrollable inflammation.

MASON CITY, IOWA, has produced a wonderful musical prodigy in the person of little Cecil Emsley Gale, a 4-year old child who was born totally blind. Cecil has never taken a lesson in music, but when he was but 16 months old he began to pick out harmonious chords upon the piano. Before he was 2 years old he startled his parents by playing through without a mistake "A Hot Time in the Old Town." Almost simultaneously with his first achievement he began to play many popular airs and hymns. If he hears a selection once, whether vocal or instrumental, he reproduces it upon the piano. He now plays sixty distinct hymns and songs, and has never had a hint or suggestion from an instructor or his parents. What he does he does by instinct; the rhythm of his childish soul directs the tiny fingers, and they glide gracefully over the keyboard, producing perfect harmony, while the handsome little fellow prattles on about his dog and toys, apparently unconscious of his music.

Many musicians have visited the home of the child genius to see and to hear him play, and many have begged for the privilege of training him. Others have sought the consent of his parents to make a tour with him. But his parents are carefully harboring his strength for the future, when they will give him every opportunity to develop his remarkable genius. If his present power is at all prophetic, he will become one of the musical marvels of the age.

EYE SPECIALIST AS A PHYSICIAN.—The ruling, in a prosecution for unlawfully practicing medicine, that, if the defendant held himself out as an eye specialist, he held himself out as "one who devoted himself to a branch of the healing art which is the profession of the physician and surgeon," and that, "if the defendant held himself out as an eye specialist, he held himself out as a physician and surgeon, within the meaning of the statute," the supreme judicial court of Massachusetts holds was correct. It further holds, *Commonwealth vs. St. Pierre*, that proof that the defendant acted either as a physician or surgeon was sufficient to support the complaint, which charged him with holding himself out as a physician and surgeon. There is, it continues, but one offense, and that may be committed by the defendant's holding himself out as a physician or a surgeon. If the complaint charges that the offense is committed by the defendant's holding himself out both as a physician and surgeon, the whole offense is proved if he has shown to have held out as either. Moreover, the court holds, the burden is on the defendant to show that

he is a registered physician, if he relies on such justification. . This, it adds, applies in cases where the absence of a license is made part of a description of the offense.—*Jour. Amer. Med. Asso.*

E. LOPEZ restates the facts in regard to the gathering of the rural population of Cuba into the garrisoned towns by the Spanish authorities during and after 1896, which resulted in a peculiar kind of anemia among the reconcentrados from the lack of wholesome food, the ingestion of indigestible substances and wretched hygienic conditions. This slow and progressive anemia was characterized by partial or generalized edema, bloating, etc., and death without any special lesions, although malarial parasites were found almost constantly in the blood of the 300,000 victims of this inhuman decree. The anemia also affected the eyesight to such an extent that the condition was known among physicians as "blockade amblyopia," as it reached its highest point during the four months of the blockade of Havana. It affected all races, sexes and professions, but was never observed in those under twenty years of age. Vision fell to one-third, one-fifth, or even to less than one-tenth of normal. The amblyopia was always bilateral, but with varying intensity in the two eyes. Most patients were restored to normal with a month of good food and tonics, but in two of the twenty observations cited by Lopez the condition was permanent, and no improvement could be noted with months of treatment. The pathologic picture is the same as with amblyopia from any cause: first, congestion, and then pallor of the optic nerve, without alteration of the vessels, retina or any portion of the interior of the eye.

HERE is a sample of letters sometimes received by physicians:

———, N. D.

Feb 20th 1900

To Dr. ———,

SIR:—About three years ago my left Eye was all at sudden attacked by some disease in which the pupile comenced to enlarge it was accompanied with a dull pain across my fore head & my neck. Some Dr "——" prescribed some kind of a lotion which seemed to help but being unable to obtain any more of the drug, my eye gradually failed. In 1897 on Feb 22 I determined to seek treatment in your City of some Oculist and went to "Dr ——" he deemed an operation necessary, and it was performed. But in so doing he removed my left eye (The one effected) but done nothing to it but replaced it and said he had to take my right eye out,

which he did, and all that my husband could see he done was to *cut* some (one) fine *cord* and replace my eye. I was confined to a dark room for 3 months, and taken home, But have never seen day-light since.

Mind Dr that there was absolutly nothing wrong with my right eye at the time of the operation.

Last fall Nov 6th My husband took me down again to ——— to a Dr ———, that Gentleman told me the nerves where dead and pronounced no hope. We then went to ——— and seen a Dr ——— been recomended from your Office by some clerk as you where out of Town. this Dr ——— allso claimed my nerves where *dead*.

Now Dr ——— I wish you would kindly tell me if there is any hope for my eyes. I have full controll of them can move them any direction desired up and down, and at times I can see flickers and rays of light, and of late some Optication of New York clamed the nerves where not dead. But that there where $16\frac{1}{2}$ degree in the right Eye & $14\frac{1}{2}$ in the left eye, he recomended a pair of Electric Glasses But fearing it was only a fake I purchased none.

Now Dr ——— would you kindly pass your oppinsin in my case if you can from this letter and if you have any slight hope of me recovering if only a portion of my eye sight I will come to you at once, as you have been highly recommd to me.

please anss & if any charges send bill

Yours Most truly

Mrs ———

———— N. D.

Dr ——— I am writing this letter for Mrs ———, and do not feel confident that I can explain the case. But Mrs ——— has enough money to pay for her cure if there is any hope for her But she naturally feels suspicious that some more misfortune shall befall her in which her face would become disfigured or such tings. Now Dr I am confident that you can help her as you have affected most wonderful cures In the country where I cam from, and earnestly hope you will

Yours ———

ARTIFICIAL EYES.—People who wear false optics are very common nowadays. According to German authority people wearing false eyes must be pretty nearly as common as the remainder of the victims collectively whom fate has deprived of a portion of their bodies, be it organ or limb. Every year, it is said, no fewer than two millions of glass eyes are manufactured in the German empire, and it is, of course, far from prob-

able that the whole of the world's supply should be made in Germany. On the contrary, it is stated in *La Médecine Moderne* that a single French firm turns out at least three hundred thousand glass eyes annually, and that there are several other factories in France the output of which is about the same. How, it will naturally be asked, can this enormous stock be utilized? Glass eyes, although essentially brittle, are little liable to injury, do not wear out quickly, and are quite independent of the vagaries of fashion. Once suited, the owner of a glass eye may make it serve him a considerable time.

A writer in the *Journal d'Hygiène* is disposed to regard the oculiform millions as a fantastic creation, seeing that one-eyed people are rare, comparatively speaking, and that the majority of them do not wear false eyes; but a little consideration should suffice to show the critic that his doubts are not well founded. Like many an objector, he assumes the premises, to wit, that all the eyes are used to replace human losses, whereas most likely false eyes of every description are included in the list.

Evidently taxidermists, bird-stuffers, the makers of wax figures, etc., must use an immense quantity, to say nothing of the artists who are responsible for the innumerable army of dolls, large and small. Viewed in the light thus thrown upon the matter, the two millions which seemed to be so amazingly beyond the mark dwindle to a mere bagatelle—a mere drop, so to speak, in the ocean of false eyes. In this connection allusion to the singular fact that it is only the one-eyed who seek to conceal the deficiency by means of a substitute may be permissible. The totally blind never wear false eyes, or if an instance now and then occur it merely serves to prove the rule. In consequence of this æsthetic sense, a one-eyed man feels compelled to endure the discomfort which in greater or lesser degree attends upon any foreign body which has obtained lodgment in the human economy, but the man who has lost both his eyes is free from this weakness—his æsthetic sense expired along with his vision.
—*London Lancet*.

A CORRESPONDENT from Milwaukee sends us the following:

An examination into the condition of the sight and hearing of the children in the Milwaukee public schools has been instituted by Dr. H. V. Würdemann, by request of the Milwaukee School Board, under the direction and authority of the Board of Health. He has associated with him in his work Dr. Nelson M. Black, Dr. John S. Barnes, and Dr. Charles Zimmermann.

The general plan of the investigation is that so satisfactorily carried

out in the public schools of Minneapolis by Dr. Frank Allport, who, after removal to the city of Chicago, instituted a like investigation. This method consists in the physicians instructing the teachers by a series of addresses in the anatomy and physiology of the eye and ear necessary for such work; an investigation as to the seating and lighting of school-rooms; the most common defects and diseases of the eye, ear and nose which are productive of poor sight and hearing, and instructions for examination of the eyes and ears. The statistical data for the investigation are obtained by a series of ten simple questions:

1. Does the pupil habitually suffer from inflamed lids and eyes?
2. Does the pupil fail to read a majority of the letters in the number XX (20) line of the Snellen's Test Types with either eye?
3. Do the eyes and head habitually grow weary and painful after study?
4. Is the pupil probably "cross-eyed"?
5. Does the pupil complain of ear-ache in either ear?
6. Does matter (pus) or a foul odor proceed from either ear?
7. Does the pupil fail to hear an ordinary voice at twenty feet in a quiet room?
8. Does the pupil fail to hear the tick of a good-sized watch at three feet with either ear in a quiet room?
9. Does the pupil fail to breathe properly through either nostril?
10. Is the pupil an habitual "mouth-breather"?

If an affirmative answer is found to any of these propositions the pupil is given a card of warning of non-obligatory nature, advising that the child be taken to a reputable physician skilled in diseases of the eye and ear, and stating that pupils with eye or ear disease cannot attain best results in school.

The teachers keep statistical blanks of the defectives, and the matter of curing the children is left, after the warning, to the parent, who is primarily responsible to the child. This method of investigation has been most favorably received and has been productive of much good result in raising the general average of intelligence among school children, as well as bettering their health in the above cities, especially in a very large number of cases which had been neglected through ignorance and carelessness of the parents.

In Milwaukee this investigation has been gladly welcomed by the school authorities, parents, the medical profession and by the public press.

DR. EDWARD L. HOLMES, president of Rush Medical College from 1890 to 1898, and a widely known ear and eye specialist, died February 12th, of pneumonia, at the home of his son-in-law, Dr. E. A. Gray, 158 Evanston avenue, Chicago. Dr. Holmes took a severe cold several days ago while firemen were extinguishing a blaze at Dr. Gray's house, and Monday it developed into pneumonia.

Dr. Holmes has been prominent in Chicago medical circles almost from the moment of his arrival here in 1856. In 1858 he founded the Illinois Eye and Ear Infirmary at Adams and Peoria streets, and in 1884, with Drs. J. Adams Allen, Charles T. Parkes and J. H. Etheridge, all of whom are now dead, he was also a founder of the Presbyterian Hospital.

His association with Rush Medical College began in 1860, when he was appointed a lecturer on eye and ear diseases. In 1867 he was given a professorship there, and from that time until 1898 he was affiliated with that institution. He was made its president in 1890, to succeed President J. Adams Allen, deceased. His resignation, due to his advanced years, took place on his seventieth birthday, Jan. 28, 1898.

For five years after his arrival in Chicago, Dr. Holmes lived at Clark and Kinzie streets, and then moved to Division and State streets, where he was at the time of the great fire. Subsequently he lived on the West Side, at Monroe and Robey streets, and in West Adams street. For three years he made his home with Dr. Gray.

Dr. Holmes was born at Dedham, Mass., in 1828. He was graduated from Harvard at the age of twenty-one, and taught for a time in the Roxbury Latin School. In 1854 he obtained his degree of doctor of medicine from the Harvard Medical School, and the next year he spent as an interne of the Massachusetts General Hospital at Boston, making a specialty of diseases of the eye and ear.

To continue his studies in these diseases further he went to Europe, and was engaged in active hospital service in Paris and Vienna for a year and a half.

Dr. Holmes was a trustee of Lake Forest University, and was connected, either in an honorary or an active capacity, with almost every medical institution of importance in the state. He was a director in the Central Free Dispensary, a member of the Physicians' Club, the Chicago Medical Society, and a life member of the Illinois State Medical Society. He was also an honorary member of the Ophthalmological and Otological societies.

Dr. Holmes married Miss Paula Weiser, of Vienna, in 1862. He

leaves six children, Mrs. E. A. Gray, Mrs. R. H. M. Dawbarn, Miss Jennie Holmes, E. L. Holmes and R. W. Holmes.

The funeral was held at the family residence February 14th at 3 o'clock. Burial was at Rosehill.

It is not too much to say that Dr. Holmes was universally honored and respected by all who ever knew him. Until age and infirmities afflicted him he was progressive and enterprising in his profession. He had a peculiarly gentle and kindly presence. He was particularly thoughtful and considerate of young practitioners, and was never known to say an unkind word of anybody. He will be missed by all who knew him, and his example may safely be followed by all who desire to practice medicine in the highest and noblest manner.

THE OPHTHALMIC RECORD

*A MONTHLY REVIEW OF THE PROGRESS OF
OPHTHALMOLOGY.*

VOLUME IX.

CHICAGO, APRIL, 1900.

No. 4. NEW SERIES.

ORIGINAL ARTICLES.

THE NEED OF MORE CAREFUL MEASUREMENTS OF REFRACTION.

BY E. W. STEVENS, M.D.

DENVER, COLO.

Unlike most branches of medicine, the department of ophthalmology which deals with anomalies of refraction and accommodation is in theory an exact science. In practice, however, refraction as an exact science is modified by the skill and judgment of the ophthalmologist.

Every careful ophthalmologist of much experience finds sooner or later that a large proportion of refractive work in both hospital and private practice is performed in a careless, inadequate and unscientific manner. "I often wonder," says Dr. Julian J. Chisholm (Trans. Oph. Sec. Am. Med. Ass., 1891, p. 206), "what has become of the hosts of hyperopic eyes that I formerly saw and treated with spherical convex lenses. That I see the same character of eyes now I am quite sure, but no longer from the same standpoint. A more careful examination proves these cases to have been mild grades of astigmatism, often myopic. The same class still comes to me from other specialists who are holding the views that I formerly acted upon before I found out my mistake."

This statement is even more striking when we reflect that it comes from one in the very foremost rank of his profession.

Chiefly through the influence of Dr. S. Weir Mitchell, the attention of

the medical profession in this country has been aroused to the intimate connection between headaches and the existence of errors of refraction; and now no investigation of a case of headache is considered complete without the refraction of the eyes and the balance of the ocular muscles having been considered. Notwithstanding this, the amount of physical suffering due to uncorrected errors of refraction is something appalling. These cases have usually consulted an ophthalmologist, and failing to find relief from the glasses prescribed, have been assured that their symptoms are not due to errors of refraction, and cannot be relieved by glasses.

The limits of this paper do not permit the citation of many illustrative cases; but the following case may be taken as a prototype of many others:

Mrs. G. F. R., æt. 35 years, wife of a physician, came to me with the following story: For years she has suffered from profound neurasthenia; has severe frontal headaches and constant aching in occipital region; complains of inability to follow lines when reading, and frequently loses place on the page; has attacks of vertigo and nausea when using eyes for near work; head feels more nearly comfortable when turned half way to left shoulder and inclined to the right; ovaries had been removed for some pelvic symptoms without improvement in general condition. Upon the advice of a competent neurologist her eyes had been examined by two different ophthalmologists during the past two years, and she was wearing O.D. and O.S.—0.75 Cyl. ax. 180° . She had just returned from consulting Dr. Charles K. Mills, of Philadelphia, whom she stated was of the opinion that her symptoms were due to her eyes, and that he had advised another examination.

My examination gave the following result: O.D. $\frac{4}{9}$; O.S. $\frac{4}{9}$; amplitude of accommodation, 5.00 D.; left hyperphoria, 2 centrad. Under atropin mydriasis the refraction was found to be O.D. $+0.75$ S $+0.50$ C. ax. 75° ; O.S. $+0.75$ C. ax. 105° . This correction, which was 0.25 D. less spherical than the glass selected by the patient at 4 meters, was ordered for constant wear, combined with a prism correcting the hyperphoria.

The headaches and dizziness at once disappeared and the patient improved rapidly in general health.

Refraction, like all other scientific work, requires experience, tact, delicacy of perception and patient attention to refinements of detail—that infinite capacity for taking pains which has been defined as genius.

The accomplished refractionist must be master of the ophthalmometer, the shadow test, and the trial case, for in his work corroborative testimony is of as much importance as in a court of law. Ample time should

be given to the study of each case. "Near enough for all practical purposes" should never be the verdict, but each quarter of a diopter of astigmatism should be carefully run down.

The correction of anomalies of refraction and muscle-balance often presents many difficult problems for our solution, the first step of which solution lies in the accurate measurement of these anomalies. Often this first step is a solution of the whole problem.

A STUDY OF THE CHANGES IN REFRACTION IN 400 EYES DURING SEVEN YEARS.

BY HOWARD F. HANSELL, M.D.

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This investigation was stimulated by the question so frequently asked by patients on the occasion of prescribing glasses, "How soon should I return for a change in glasses?" but I regret that no definite or even practical conclusion may be drawn that may serve as an answer to the question. The factors which enter into the determination of a change in refraction are numerous and varied, such as the age of the patient, the character and degree of the optical condition, heredity, occupation, environment and health. Each case is a law unto itself and no reliable general average can be stated for all cases, nor even for the different kinds of refraction, and no trustworthy deductions may be drawn as to whether the refraction will increase or decrease as time goes on. The examination of the cases has, however, brought out facts that seem to me interesting and worthy of publication.

I have taken from my private case book 200 consecutive cases of refraction that have returned to me for a second examination in periods varying from two to sixteen years. The eyes examined were free from disease of all kinds and the patients made no ocular complaints that were not referable to defects of refraction. In analyzing these cases I have considered the changes that have occurred in the spherical and astigmatic defects, and in the latter the rotation of the axis of the astigmatism.

In the investigation astigmatism has been reckoned as either myopic or hyperopic refraction, according to its kind, and compound astigmatism was not differentiated from simple. The striking feature of the analysis according to ages is in the large number of eyes that for long periods have shown no changes in their refraction, including hyperopia of 8 D.,

myopia of 10 D., Comp. H. As. $+4\text{C}+4$ Cy. and a case of mixed astigmatism $-1\text{C}+4.50$ that held unchanged for eight years.

Total: 400 Eyes $\left\{ \begin{array}{l} 249 \text{ H. and } 94 \text{ no changes.} \\ 114 \text{ M. and } 37 \text{ no changes.} \end{array} \right.$

TABLE OF NO CHANGE IN REFRACTION OF 249 EYES ACCORDING TO DECADE AND DEGREE OF HYPEROPIA.

	H. Eyes.	No Change.	Less than 2 D.	2 to 4 D.	Over 4 D.
To 20th year-----	70	26	21	1	3
To 30th year-----	50	20	16	3	3
To 40th year-----	56	29	15	11	2
To 50th year-----	47	17	10	3	4
To 60th year-----	16	2	None	2	None
To 70th year-----	10	None	None	None	None

TABLE OF NO CHANGE IN REFRACTION OF 114 EYES ACCORDING TO DECADE AND DEGREE OF MYOPIA.

	M. Eyes.	No Change.	2 D. or Less.	2 to 5 D.	5 D. and Over.
To 20th year-----	26	5	1	1	3
To 30th year-----	43	8	5	2	1
To 40th year-----	22	16	5	5	6
To 50th year-----	20	7	6	None	1
To 60th year-----	3	1	None	None	None

Of 400 eyes, 141 show increase in their refraction and 119 decrease, thus verifying the accepted observation that the tendency to increase in refraction is exhibited in more eyes than a tendency to decrease, but this difference is less striking than is, I believe, usually supposed.

There were of hyperopes 69 decreases, 180 increases. There were 8 myopic eyes which decreased in refraction, and 107 increases.

Of the 400 eyes, 56 had increase of refraction (decrease of H.); 97 had decrease of refraction (increase of H.). (All these were cases of H.). There were 40 instances of myopia in which a change in the refraction occurred, namely, 66 were increased in refraction (increase of M.), and 12 were decreased in refraction (decrease of M.). There were 28 eyes with mixed astigmatism in which there was an increase of the plus refraction in 6, of minus refraction in 8, a decrease of plus in 9 and a decrease of minus in 6; so that on the whole the mixed astigmatism showed a tendency to increase in the glass needed for the correction of both the principal meridians. The axis of the cylinder needed to be changed in 56 eyes only, the changes varying from 5° to 90° .

Of the important changes significant both as to the refractive error

and the cylinder axis, 18 were myopic, 13 hyperopic and 9 mixed, showing a great preponderance of myopic eyes. There seemed to be no regularity in the order of the change of the axis either in H. or M. and no tendency displayed either for the cylinders to approach the vertical or horizontal axis, but rather an inclination to shift from either of these axes into symmetrical axes of 15° away from them. The changes were indicated more frequently in cases of low astigmatism than those of high degree.

In the 200 patients the male and female sex were equally divided. Thirty-nine females showed increase of refraction, 37 showed decrease of refraction. Thirty-three males showed increase of refraction, 23 showed decrease. The eyes in which no changes were found were almost equally divided between males and females, but there was a slightly larger number of females.

Occupation seems to have only a slight influence upon the increase or decrease in the refraction, although refraction seems to increase in the first and second decades of life, but whether this is due to the stretching tendency that is known to be at its maximum at that time or to the demands of school life is not clearly shown. For instance, of 42 patients, including school children and other young persons who were obliged to accommodate and converge several consecutive hours every day, 11 only had no change, 20 increased in their refraction and 8 decreased. But the contrary, that the want of an occupation that demands the constant use of the eyes at the near point or maturity of adult life, when the hardening process in the lens and stretching of the coats of the eyes has stopped, tends to prevent changes in refraction is proven by the record that among 116 patients, comprising merchants, housekeepers, bankers, etc., 49 had no change, 34 an increase and 39 a positive decrease in refraction within the period of years under observation. The increase seems to advance equally whether the refraction was H. or M. at the first interview. Since the greater proportion of persons have astigmatism in combination with the spherical defect, it is difficult to determine that the astigmatism is responsible for the change, but theoretically it would appear to be no inconsiderable factor. It is significant, however, in this discussion that several cases of simple and compound astigmatism of high grade, and even mixed astigmatism, used with comfort the same correction for ten or more years, and then when examined under exactly identical conditions as at the first, had no need for change in the glasses.

High grades of defect had a less tendency to change in their curves than medium or low.

For example: Among 179 eyes of less than 2 D. 52 showed no change in refraction—29 %; between 2 and 4 D., 93 eyes, 37 showed no change in refraction—39 %; for 4 D. or higher, 47 eyes, 18 showed no change in refraction—38 %. This unexpected showing is probably explained because of the earlier and more careful attention that such patients receive and that they wear their glasses constantly. It is much easier, as is well known, to discover and correct a grave defect of refraction than a slight one, but this is sometimes counterbalanced because the imperfect vision that usually accompanies the highest grades gives an excuse to observe a certain laxity in determining and correcting small changes. The two most striking examples of no or very insignificant changes were in Case 78, R. $+4\text{C}+3^{\circ}$ ax. 95° ; L. $+4\text{C}+4^{\circ}$ ax. 90° , which in 4 years, from 28 to 32 years of age, had added only .75 to the spherical of the right and the left was unchanged; V=R. 20/40; L. 20/200 (internal squint), and in Case 24, R. $+8\text{C}+2.50^{\circ}$ ax. 60° ; L. $+7.5\text{C}+2^{\circ}$ ax. 100° , which 10 years afterward, from 24 to 35 years of age, required absolutely no alteration; V=R. and L. 20/20. Of the myopes of 2 D. and under, 38 cases, 14 showed no change—37 %; between 2 and 5 D., 52 cases, 13 showed no change—25 %; over 5 D., 29 cases, 12 showed no change—41 %. Of the hyperopes of less than 2, 150 cases, 51 showed no change—34 %; between 2 and 4 D., 63 cases, 26 showed no change—41 %; of 4 D. and over, 20 cases, 10 showed no change—50 %.

CONDITION OF REFRACTION AFTER LAST EXAMINATION OF 400 EYES.

	Total Eyes.	No Change.	Increase.	Decrease.
To 20th year.....	97	32%	42%	25%
To 30th year.....	108	28%	50%	21%
To 40th year.....	89	52%	32%	15%
To 50th year.....	74	36%	17%	46%
To 60th year.....	22	18%	18%	63%
To 70th year.....	10	None	None	10%

There were no very remarkable cases in M. that showed no change, but in mixed astigmatism there were several eyes of considerable degree that held unchanged for seven years or more. Out of 34 eyes of mixed astigmatism 8 only showed no change, of which no more than 2 were in any one decade.

If the number of eyes and the number of years that these eyes were under observation are sufficiently great for general deductions, we can make the following conclusions:

1. That among 400 eyes corrected under mydriasis and wearing

glasses for all needful purposes, for a period of years averaging $7\frac{1}{3}$ in the total number, a large proportion showed no change in their refraction.

2. That increase of refraction was greatest in the third decade, with the second decade as a close second, and after the thirtieth year the proportion of increases showed a rapid decline.

3. That the decrease of refraction was at its minimum in the fourth decade, and that in later years the ratio showed a marked and rapid increase and the tendency to decrease in refraction was greater than the tendency to increase.

4. No arbitrary rule can be formulated that shall determine when a change in the correction is indicated, but we must be guided by the age rather than by the refraction and that changes in the form of the eye are quite as frequent when the refractive error is low as when it is high.

While this analysis is made up without relation to the health and environment of the patients, I have been impressed by the few changes necessary in the absence of sickness and by the speedy and frequent changes indicated when the health is undermined. In all cases of patients under 45 years of age the refraction was estimated under mydriasis and under identical conditions, and thus the personal element was entirely eliminated.

THE "CROSSED CYLINDER" IN THE DETERMINATION OF THE REFRACTION.

BY T. B. SCHNEIDEMAN, M.D.

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The average oculist probably spends more time at the trial case than in any other professional service, more, likely, than in all others combined. It is well worth while to formulate a plan of using the lenses which will lead to the result with the greatest certainty and dispatch. Adherence to a method will develop the refractor's skill in its use and is in every way preferable to aimless searchings and trials.

Years ago Dr. Edward Jackson* introduced and described a device admirably adapted for the rapid and certain determination of the refraction. This device is a crossed cylinder. We have never known any one who has learned to refract with it to abandon the method. It gives a

*Transactions of the Am. Oph. Soc., 1888. In Dr. Jackson's Manual of Diseases of the Eye, recently published, the crossed cylinder (astigmatic lens) is briefly described upon page 184.

sense of confidence in the result that cannot be acquired in any other way. The refractor who is in the habit of employing it becomes almost incapable of using the trial lenses satisfactorily without it. It is to the subjective method something similar to what the shadow test is to the objective.

And yet, notwithstanding the excellence of the method, we doubt if its use is as widespread as it deserves to be. It appears that a practical matter like this is only likely to gain converts upon the evidence of personal demonstration, but there is no good reason why this need be so—a few minutes' attention to the details should make the application easy, if the description is as clear as it may be made.

The crossed cylinder, as its name implies, is a pair of cylinders of equal strength, one convex, the other concave, placed at right angles to each other. Such a pair of crossed cylinders is, of course, equivalent to a sphero-cylinder. Two such combinations of different strengths made upon the following formulæ are desirable: $-0.25 \text{ sp.} \odot +0.50 \text{ cyl.}$, and $-0.50 \text{ sp.} \odot +1 \text{ cyl.}$ These are equivalent to a pair of 0.25 and 0.50 cyls., respectively, one plus, the other minus, placed at right angles to each other. The direction of one axis (the other being, of course, at right angles) and the strength of the cylinder is to be marked upon the glass.

The crossed cylinder is intended to determine the cylinder required in cases of astigmatism. It is to be used as follows: A correction, more or less approximately the right one, is placed in the trial frame. The approximation may be arrived at by the shadow test, ophthalmometer, trial lenses, stenopaic slit, astigmatic chart, etc.

Before proceeding to examination with the crossed cylinder, the approximate correction before the eye in the trial frame is to be tested with plus and minus spheres to make sure that no improvement can be made by changing the sphere.

The crossed cylinder is then held before the eye under examination with one of its axes parallel to the axis of the cylinder in the trial frame, and then turned so as to cause the other (opposite) axis to occupy the same direction. The person under examination is asked to state which of the two directions gives the better vision, i. e., with the plus or minus axis parallel to the axis of the trial cylinder. The latter is then to be changed in accordance with the person's statement. If he states that the vision is better when the plus axis of the crossed cylinder coincides with the plus axis of the trial cylinder, the latter is to be replaced by a stronger cylinder; if the minus axis so coinciding is preferred, the trial cylinder is to be weakened.

If the trial cylinder is concave, the crossed cylinder gives similar indications, i. e., to strengthen or weaken the cylinder according as the correspondence of the minus or plus axis of the crossed cylinder gives the better vision.

After every change made in the strength of the trial cylinder as suggested by the crossed cylinder, the sphere of the trial combination must be re-tested with plus and minus spheres to determine whether it is to be increased or diminished.

The axis of the trial cylinder is also to be re-tested after any change made in the sphere or cylinder. The examination with the crossed cylinder is to be repeated in the way just described after any change made in the sphere or cylinder until the crossed cylinder leaves the sight unchanged in either position, or when this is not attainable, until the change suggested by it in one direction is, after such change has been made, to be again reversed, i. e., the cylinder is now in equilibrium. The crossed cylinder now indicates that the true cylinder required is midway in strength between two successive ones of the trial case.

Where the best approximate correction is a sphere only and no cylinder seems required, the crossed cylinder is also valuable. Held in different positions it may suggest that one meridian is somewhat different; a weak cylinder, say a $+0.25$ or -0.25 , is placed in the position indicated, the crossed cylinder will show whether it is to be retained, increased or rejected. Both plus and minus cylinders may be tried successively in axes indicated by the crossed cylinder.

If the approximation is a cylinder only and no sphere seems required, this cylinder is to be tested with the cross cylinder as before; plus and minus spheres are to be tried after any change in the strength of the cylinder, just as if a sphere formed part of the correction. A sphere may be accepted when the correct cylinder has been found.

Of the two cross cylinders the stronger is useful where the astigmatism is considerable, the changes it indicates being greater. Even in cases where the difference between the meridians is considerable the weaker cross cylinder may be employed in the final determination.

It is to be borne in mind that the person under examination is not asked whether the crossed cylinder improves the vision—it may even make it worse—but which of the positions is the better, or less bad.

An illustrative case may serve as an example.

Suppose the true refraction of an eye to be expressed by the formula $+1.75 \text{ sp.} \odot +1 \text{ cyl. ax. } 90^\circ$, and that a $+2.25 \text{ sp.} \odot +.50 \text{ cyl. ax. } 90^\circ$ has been placed before the eye as an approximate correction; although

neither this sphere nor cylinder is the true one, one meridian is corrected by them, and no sphere is capable of improving this combination, but both plus and minus spheres will make the sight worse.

The crossed cylinder in its two positions will give the following results respectively: (a) With the plus axis of the crossed cylinder parallel to the axis of the trial cylinder (+.50) we have + 2 sp. \ominus +.75 cyl. ax. 90° , and (b) with the plus axis of the crossed cylinder at right angles to the axis of the trial cylinder, + 2.50 sp. \ominus +.25 cyl. ax. 90° . The first being nearer the real correction, will be preferred as giving the better vision. Making the change indicated, the trial cylinder (+.50) is strengthened, being replaced by a +.75 cyl., the combination now being + 2.25 sp. \ominus +.75 cyl. ax. 90° . Plus and minus spheres held before this will indicate that the sphere is to be reduced; replacing the 2.25 sp. by a 2 sp. and re-examining with the crossed cylinder the two following combinations result: (a) With the plus axis of the crossed cylinder parallel to the axis of the trial cylinder we get + 1.75 \ominus +1 cyl. ax. 90° , and (b) with the crossed cylinder in the opposite position, + 2.25 sp. +.50 cyl. ax. 90° . The first is evidently the better. Making the change indicated we have + 2 sp. \ominus +1 cyl. ax. 90° . Trial by spheres now indicates that the spherical portion of the combination is to be reduced to + 1.75. The crossed cylinder would now show no preference, held in either position, nor can the combination be improved by plus or minus spheres.

As mentioned before, the axis of the cylinder is to be re-tested after any change in the sphere or cylinder. For the sake of simplicity, we have assumed that the trial cylinder has been correctly placed in the example.

THE DIOPTRIC POWER OF THE CORNEA.

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WASHINGTON, D. C.

Every one who makes use of the Javal ophthalmometer is familiar with the dioptric scale on the bar carrying the mires, but many who are skilled in the practical use of this instrument, and yet have not found it convenient to investigate the optical principles upon which the scale is constructed, have an erroneous conception of the meaning of this scale. It may not, therefore, be inappropriate to present an explanation of what is meant by the dioptric power of the cornea as recorded on the ophthalmometric scale.

The radius of curvature of the cornea is obtained from the equation $\frac{O}{I} = \frac{2}{r} l (1)$, O being the diameter of the reflecting object, I that of the image, l the distance of the object from the cornea, and r the radius of curvature. The separating power of the bi-refrangent prism being known, and O , the diameter which must be given the reflecting object in order that the images be seen in the tangential position, being directly measured, we have all the data necessary for determining r , the radius of the cornea.*

Having determined the radius, the dioptric power of the cornea is ascertained from the equation $\frac{1}{F} = \frac{n-1}{r}$, in which F represents the anterior focal length of the cornea and n (1.337) the index of refraction of the cornea and aqueous. From this equation we also derive $r = (n-1) F$. Substituting this value of r in equation (1) and assigning to I , l and n their numerical values, we derive the equation, $\frac{1}{F} = \frac{O}{5.06}$. That is to say, the dioptric power as measured by the anterior focal length is equal, approximately, to one-fifth of the diameter of the reflecting object measured in millimeters; or, every increase of five millimeters in the diameter of the object represents an increase of one diopter in refractive power. In accordance with this each division of the stepped mire and each dioptric division on the scale is five millimeters in breadth.

Let us suppose that we find the double images to be in the tangential position when the rectangular mire is at the division marked 20 and the stepped mire at 23; adding these numbers, we say the refractive power of the cornea is 43 diopters. Does this mean that the cornea whose radius is 7.8 millimeters (which corresponds to 43 D. on the scale) is equivalent to a lens of 43 D. and might be replaced by such a lens? Refraction by a single surface differs from that by a lens in that in the former the two principal focal lengths are unequal, the posterior being n times the anterior focal length. Rays proceeding from the anterior focus will be parallel after refraction, and for such rays the cornea might be replaced by a lens of 43 D., but rays which are parallel when they meet the cornea will after refraction meet in the posterior focus, distant $1/32$ of a meter from the cornea; and for these rays the refractive power of the cornea is only 32 diopters. If the rays should proceed from some other point on the optic axis, the cornea would be equivalent neither to a lens of 43 D.

*In the 1889 model the separating power is 2.94 mm. when $l=290$ mm., as is the case when the instrument is properly adjusted; hence when the double images are tangent, I must be equal to 2.94 mm.

nor to one of 32 D., but to a certain other lens which would have the same conjugate points as the cornea. In other words, *the cornea has no fixed dioptric value*. It could always be replaced by a certain lens, but by a different lens for every variation in the length of the incident pencil.

Since the cornea has no fixed dioptric power, why do we, by subtracting the dioptric power (as recorded on the ophthalmometric scale) in the meridian of least refraction from that in the meridian of greatest refraction, obtain the dioptric equivalent of the lens which corrects the astigmatism? It is because, as the formulæ for refraction show, the dioptric power of the correcting lens is always equal to the difference between the reciprocals of the anterior focal lengths whatever be the length of the incident pencil. For instance, let us suppose an eye to be myopic 1 D. in the horizontal meridian and 2 D. in the vertical meridian. Since in the former meridian the far point of the eye, which is conjugate to the retina, is one meter distant from the eye, we have, by applying the formula for spherical refraction, the equation, $1 + \frac{n}{f^1} = \frac{1}{F}$, f^1 being the distance of the retina from the cornea and F the anterior focal length of the cornea. In the vertical meridian, since the far point is $\frac{1}{2}$ meter, we have the similar equation, $2 + \frac{n}{f^1} = \frac{1}{F_1}$. Then $\frac{1}{F_1} - \frac{1}{F} = 2 - 1$; or, $\frac{1}{F_1} - \frac{1}{F}$ is equal to the dioptric power of the lens which corrects the astigmatism.

It is in this sense only that the markings on the scale represent the dioptric power of the cornea.

EXTRACTION OF CONGENITALLY DISLOCATED OPAQUE LENSES, WITH PRESENTATION OF THE CASE.*

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CHICAGO.

Illustrated.

This patient, Mrs. H. —, æt. 44 years, was first seen by me October, 1894. She complained of poor sight, and was unable to get glasses that would benefit her. Examination showed ectopia lentis in each eye. The

* Read at meeting of Chicago Ophthalmological Society, March 13, 1900. Discussion on page 188.

right lens was displaced upward and outward, the left upward and inward to about the same degree. (Fig. 1.) Both lenses were clear, as was also the pupillary space, so that the details of the fundus could be distinctly seen, and no other deformities about the eye were observed.

R. V.—12/200; L. V.—5/200.

She is a widow, born in Ireland, and has always been in good health.

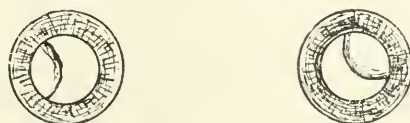
Of her four living children, two show the mark of heredity. Maggie, now *æt.* 15 years, has both lenses dislocated (Fig. 2), the right being displaced upward to such an extent that its inner edge does not reach the



Right.

Left.

Fig. 1.—Mrs. H., aged 39 years.



Right.

Left.

Fig. 2.—Maggie H., aged 10 years.



Right.

Left.

Fig. 3.—Joey H., aged 5 years.

center of the pupil, while the left is displaced outward and upward to nearly the same degree.

Joe, now *æt.* 10 years, has both lenses displaced symmetrically inward, as shown in the diagram. (Fig. 3.) In all these cases the lenses were perfectly clear and the fundus could be seen either through them or through the aphakic portion of the pupil. A record of these cases was presented to the Ophthalmological Section of the American Medical Association at its meeting in Denver, June, 1898, and the sketch here shown represents the condition as first seen in the different eyes.

July 8, 1898, Mrs. H. again came into my service at the Illinois Eye and Ear Infirmary, complaining that the sight of the left eye had become

suddenly worse after a slight blow on the eye by the baby a short time before. Examination showed that the left lens, which had formerly been perfectly clear and displaced upward and inward, had become opaque and had dropped down into the normal position behind the pupil, thus obscuring the vision. Furthermore, it flopped back and forth with every motion of the eye, and was causing considerable irritation, so I decided to remove it. As the lens was still attached above, and as the free movement indicated fluid vitreous, I made the incision through the lower part of the cornea, so that I could immediately remove the lens with the scoop or wire loop if necessary. No escape of vitreous followed the incision. An attempt to do an iridectomy below was unsuccessful, so I removed the lens with the wire loop without it. There was a very slight escape of fluid vitreous. She made an uneventful recovery and was discharged from the infirmary at the end of three weeks.

Vision of left with Sph. +8.00, Cyl. +1.50, 180° = 20/70.

The pupil is drawn down from an attachment of the iris to the wound.

On Jan. 10, 1900, she came to me again because of trouble in the right eye. The lens, which was clear and displaced upward and outward when I saw her before, had become cataractous and had dropped into position behind the pupil. It moved freely with every motion of the eye and caused her considerable annoyance. She had first noticed a cloud coming over the upper part of the field some three months before.

January 13th, under cocaine and holocaine anæsthesia I made a simple extraction of the lens by means of the wire loop through an incision in the lower part of the cornea. Before the incision was completed the vitreous began to escape, and the extraction had to be performed rapidly to prevent too great a loss. It was remarkable how promptly healing took place, notwithstanding some adhesion of the iris to the wound, and the patient was discharged February 5th.

Her vision is as follows:

R. V. with Sph. +11.00	20/160
Sph. +15.00	Sn. 1.12
L. V. with Sph. + 8.00	⊂ Cyl. + 1.50
	Ax. 180 20/70
L. V. with Sph. + 12.00	⊂ Cyl. + 1.50
	Ax. 180 Sn. 0.50

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NO. 4. NEW SERIES.

EDITORIALS.

SOME REQUISITES FOR THE ACCURATE MEASUREMENT OF REFRACTION.

No one does well the thing he thinks is not worth doing. So an appreciation of the importance of the accurate measurement of refraction is to be set down as the first requisite. There are various things that tend to prevent such an appreciation. We are still influenced by traditions coming down from the times when the surgeon simply dismissed the patient needing glasses to the lower world of the lens-grinder. And the ignorance of the subject of ametropia that was practically universal before the day of Donders still lingers among those who have not mastered what he taught. Again, ametropia is such a common thing, that the childish cast of mind that thinks only the unusual is worthy its especial consideration, cannot interest itself in the correction of errors of refraction. Then there is none of the glamour that hangs about the performance of an operation, like the extraction of a cataract or the removal of "a tumor." Moreover, it is an accomplishment that is too different from the work of the medical profession in other directions to be appreciated by those engaged in other lines of practice; and a sufficient skill in it has so often been claimed by the most ignorant and careless pretenders that skepticism as to its difficulty and delicacy is not to be wondered at. Nothing but a repetition of the real facts of the case, a continued holding up of the mistakes of those who take this work lightly, a pointing out on all occasions of the harm that comes and the misery that goes unrelieved from the hands of the bungler in refraction, will overcome these obstacles to a proper appreciation of the value of the best work in this field.

A second requisite, and one not universally possessed, is a belief that the exact and definite measurement of the refraction of the eye is possible. He will not put forth his best effort who does not believe that the object in view is possible of accomplishment. Some years ago in a discussion of the static refraction of the eye before the American Ophthalmological Society, a prominent member illustrated his views by this story and comment: "A horse-dealer called his son to come and ride a horse. 'How shall I ride him,' the son inquired, 'to buy or to sell?' This covers the case. A patient comes and we can find astigmatism or not, as we wish." It is worth while to consider the reasons for this skepticism.

A common one is the habitual measurement of refraction without cycloplegia. A man who supposed that it was proper to measure the height of a horse while it ran would naturally be skeptical about discriminations regarding a single inch in height. So the surgeon who generally measures refraction when it is liable to change a whole dioptré from one minute to another is very likely to doubt differences of a quarter or half dioptré between the principal meridians. But there are other faults of method. In one of the largest eye hospitals of this country, where young men by the dozen were getting their training in ophthalmology, it was for years customary to apply the subjective method of measurement by light so poor that on dark days 20/30 or even 20/40 would be the best attainable vision. Of course under such conditions accuracy was unattainable. Then it must be remembered that very rarely does the refraction of an eye correspond exactly with that of a lens. In the mass of cases it really falls between some two numbers of the trial set; and only the most careful testing will determine which of the two numbers is the nearer right.

Finally, every eye presents, in the dilated pupil, different degrees of refractive error. We know that there may be a difference of two or three or more dioptries between the refraction of the center and that of the margin of the pupil. This might be thought to render exact measurements impossible. But it does not. In every pupil there is some portion with practically uniform refraction, which is capable of giving the best retinal image. This is the part the patient will use to see with; and it is the correction of this part that constitutes the true correction for that eye. Fortunately, with test lenses the patient will, if given the proper opportunity, usually select this particular correction, and by skiascopy the part of the pupil having the best refraction can generally be picked out. But by other methods, especially with the ophthalmoscope, one is liable to measure, not this true refraction of the eye, but that of some other part

of the pupil. Doing this, of course one time we may and another time may not find astigmatism in the same eye. But measured carefully, by adequate and exact methods, there will be found as little room for dispute about the refraction of an eye as about any other physical measurement.

A third requisite is a good method of working. There may be several good ones, and we will not now stop to compare particular methods. But it must include the taking of the measurements in more than one way, as by the ophthalmometer, skiascopy and the subjective test. The more widely diverse the tests the better, so that the possible errors of one may be guarded against by the others. It must also include the careful trial of departures either way from the correction selected, until it becomes certain that any such departure impairs the accuracy of the correction. No one who does not follow some routine plan can avoid omissions that will permit frequent errors; and no one who carefully works out the refraction in many cases can avoid falling into some system of doing it.

Among additional requisites may be mentioned the possession of the necessary patience and command of time. To stop in the course of a test of refraction, before the error has been ascertained with certainty and accuracy, is largely to throw away the time that has been expended. It is sometimes important to repeat our measurements; but one accurate determination is worth more than any number of inexact approximations. The amount of time necessary for an accurate determination cannot be known beforehand, the only satisfactory way is to have the time sufficiently at command to continue the tests till they yield the result sought for. A consciousness of a roomful of people waiting impatiently to see you is fatal to accuracy and certainty of results. This need for a command of time must be recognized both in the arrangements for office hours and in the scale of fees. No one will take adequate time for his refraction work if he feels inadequately paid for it; and no one except he who does it will fully estimate the time such work takes, or appreciate the effort required in discriminating accurately as to the error of refraction present.

The patience required for this work is something for cultivation and development, as well as a matter of original temperament. But no one is likely to become an adept who does not find some pleasure in hunting down the exact nature and extent of a refractive defect. Up to a certain point all eyes are more or less alike, and the work of testing them may seem tedious and monotonous. But when exactness of observation is carried toward the limits of possible accuracy, every eye takes an individuality of its own, shows that it differs from all other eyes and presents

a problem in the working out of its refraction that is in some respects new.

In this way may the measurement of refraction be made to lose its monotony and take on the charm of original research. The constant employment of the objective methods, skiascopy and the ophthalmometer are a great help in this direction; but sufficient time, careful attention and minute exactness of observation are the essentials.

EDWARD JACKSON.

EXAMINATION OF THE EYES OF SCHOOL CHILDREN.

The Board of Education of Philadelphia has energetically taken hold of the health of the school children. The temperature of the rooms is to be controlled; hygrometric tests are to be made; air supplies will be furnished with hot air furnaces; air ducts will be placed in the school-rooms; the windows of class-rooms will be raised ten minutes during recess; no expectoration will be allowed on the floors; no candy will be eaten at recess; janitors will scatter sawdust on the floors before sweeping, wipe the desks and seats with a wet cloth once a week, and wash windows, doors and banisters with hot soda solution. During epidemics the rooms will be disinfected with formaldehyde. Everything used will be boiled, and ordinary slates will be abolished. The overcrowding of pupils in the different class-rooms will be prevented. Individual drinking-cups will be employed. Beginning with next October, systematic tests for hearing and eyesight will be made.

Philadelphia is evidently making a strong effort to preserve the health of the school children. This is as it should be, and is entirely harmonious with the usual progressiveness and thoroughness of the medical profession of that city.

The writer desires to call attention to a clipping from one of the Chicago papers on the same subject, which he will quote verbatim:

WHAT CAUSES DULLNESS.

That dullness and apparent inattention of children often is due not to defect of the mind, but to shortsightedness or partial deafness, is asserted by Superintendent Andrews in a bulletin which he will issue to the principals of the schools in a few days.

"A child is dull only so far as its physical faculties are defective," says the superintendent. "Often a teacher believes a pupil to be naturally bright, judging from his appearance and surroundings. But when in

class that pupil shows a sense of misunderstanding which is alarming. No cause can be found for it until an examination is made, when it is seen that the child is affected with myopia or deafness. A parent often cannot understand why a child fails to comprehend certain things. The explanation lies in physical disability in either of the forms mentioned."

The bulletin which will be issued is as follows:

"Cases having been reported in which pupils' inattention and apparent dullness has clearly resulted from myopia or deafness, I urge each principal or teacher in charge of any pupil who is constantly inattentive or apparently dull to arrange for a careful examination of any such pupil by the child-study department to determine, if possible, whether the defect is of physical origin. Pupils found physically defective as above must be given all possible attention, such as favorable seats, individual aid, etc."

The bulletin will be sent to all principals and teachers.

It is hoped that the painstaking care manifested in the Philadelphia program will be emulated in the Chicago schools. As ophthalmologists we are especially interested in the eye and ear tests, and the writer regrets that the *systematic* tests proposed by him, and adopted by the Chicago Board of Education, seem to have fallen somewhat into disuse.

Superintendent Andrews in the above circular says: "I urge each principal or teacher in charge of any pupil who is constantly inattentive or apparently dull to arrange for a careful examination of such pupil by the child-study department, to ascertain, if possible, whether the defect is of physical origin." It will be seen that such a custom would dispense with a systematic examination of each child, which experience proves is of immense value, disclosing as it often does utterly unsuspected eye or ear diseases of enormous extent. Easily apparent diseases are not so important from this point of view, for they are usually looked after by somebody; but neglected children, who learn to vicariously perform eye or ear service by the use of other senses, are frequently unnoticed, until a systematic and personal examination discloses their lamentable condition.

The writer begs to briefly review the history of the eye and ear tests in the Chicago schools. Just about two years ago the Board of Education adopted his method for the examination of school children's eyes by teachers, and requested him to superintend its proceedings, in all but two districts in the city, in which a gentleman connected with the city schools was assigned to do the work. Some fatal mistakes, however, were made in the matter, provided a sincere desire existed to make the plan a success.

In the first place, the plan was not adopted until late in the year, too late in fact to instruct the teachers, and make the tests, without interfering with the hard work of teachers and pupils necessarily attendant upon a closing school year. Through many unnecessary delays in getting out the printed matter, the lateness of the season was accentuated, and when everything was ready for work, it was too late to expect teachers to put the matter in operation. By next fall the tests were almost forgotten. Perhaps the most important impediment in the way of success was the fact that the board did not *oblige* teachers to make the tests. The result was therefore a foregone conclusion. Only those teachers who made the tests from conscientious reasons made them. When Mr. Andrews became superintendent, the writer had but to mention the matter to him to meet with a sympathetic co-operation. He instantly ordered more printed matter, and sent circulars to all the principals urging them to see that the tests were made. But he could not insist upon it, neither could he demand reports; the board had forbidden it. Nevertheless, sufficient interest was aroused to cause the examination of about 100,000 of the 250,000 school children in the city, and immense benefit has thereby resulted. But there the matter died, and its place is taken by a request that children be watched, and if they are believed to be defective, it is advised that they be sent to the child-study department, thus doing away with all system and all accuracy. For those who do not understand the plan, the writer begs to outline it.

An eye and ear surgeon is appointed by the board, whose duty shall be to superintend the plan, to annually give lectures to teachers, instructing them on ocular school hygiene, and how to make the tests. Visual instruction charts, and warning cards to parents are then freely distributed in the schools, and the teachers make the simple and easy tests, the details of which may be found in the following periodicals: *Journal of the American Medical Association*, March 2, 1895; *The American Edition of The Review of Reviews*, June 5, 1897; *The Educational Review*, September, 1897; *Journal of the American Medical Association*, June 1, 1898; *The North American Practitioner*, 1898.

Where a child is found who is believed to have some defect of the eye, ear, nose or throat, the teacher sends a warning card to the parent, which states that some defect of these organs is believed to exist, and ventures the advice that a family physician or some specialist be consulted either at an office or dispensary. The matter is, however, *not* obligatory. The parent may do as he chooses, and if he decides to consult a medical man he is at perfect liberty to see any one he chooses. These tests are

repeated annually. The teacher, of course, does not pretend to make a diagnosis. She merely ascertains that *something* is wrong, leaving it for the physician to work out the details.

No salary is involved, and absolutely the only expense will be the printed matter, which should not cost over \$100 or \$200 for a city the size of Chicago.

One objection has been raised that seems to possess considerable weight, but which investigation will show to be valueless. It is often claimed that it is too much of a burden to already overworked teachers. Let us see. No school-room contains over fifty pupils. It takes from three to five minutes to examine each pupil. If a few pupils were kept after school each day for one week an entire school-room could be easily examined. 'If *one* room can be thus quickly examined, *every* room in a building and in a city could be examined in the same length of time without inflicting any hardship upon anybody. Besides this, the teachers are better acquainted with the physical condition of their own scholars than the principal, and she therefore could make the tests more easily and intelligently. She will also find that ultimately her labors will be much lightened, as myopic, hypermetropic and astigmatic children will be fitted with glasses, inflammatory diseases will be relieved, deaf children will be made to hear better, etc. Such children will no longer require the perpetual care and consideration previously made necessary by their physical defects, and the teacher's labor must necessarily be materially diminished.

It is difficult, therefore, to understand why the Chicago School Board has been unwilling to maintain these tests, and place them in their proper place by compulsory enforcement on the part of the teachers. They are easy, practical, cheap, and reasonably accurate. They require nothing of parents; they merely *advise*. Children may consult whom they choose. The board eye and ear surgeon does not come in personal contact with scholars, and therefore no professional friction should be engendered, except, perhaps, by those of ultra narrow and contracted minds. The tests are painless and harmless. Why, therefore, should they not be compulsorily adopted, not only in Chicago, but wherever schools exist. They are already quite generally adopted in this country, and the writer is just informed by the Inspector General of Southern India that they will probably be adopted in that country. In Milwaukee they are being made under the joint supervision of the Board of Education and the *Department of Health*, and this will probably be true in San Francisco. This is an excellent idea, and should be adopted wherever possible.

To the credit of the Child Study Committee of the Chicago Board of Education, whose chairman and dominant spirit is Dr. W. S. Christopher, be it said, that it has recently become impressed with the importance of the *systematic* examination of school children's eyes by teachers, and has taken steps to see that these tests are annually performed in the manner before described. This committee, with Mr. Fred W. Smedley as Director of the Child Study Laboratory, will keep a watchful eye over the tests and see that they are properly performed. This is an excellent idea, as it gives the eye and ear tests a permanent home, as it were, under whose auspices the work may be effectually accomplished.

ALLPORT.

A NEW METHOD FOR THE EMPLOYMENT OF EUPHTHALMIN.

Some years ago, while supplementing the experiments of Lang and Barrett relative to the increased mydriatic and cycloplegic effects upon the eye of homatropin when instilled with cocain, the writer was able to show that the latter agent also stimulates the action upon the ocular apparatus of other drugs when locally applied. Not only, for instance, may a complete paresis of accommodation be accomplished by atropin, duboisin, or hyoscin, when a comparatively small dose of these alkaloids mixed with cocain is employed, but the miotic effects of eserine and pilocarpin are likewise very greatly enhanced by a similar mixture. In other words, it is not necessary when one desires to accomplish a certain end, by instilling solutions into the conjunctival sac, to prescribe (speaking generally) more than one-half the text-book dose if the place of the other half is taken by cocain. Of course it is possible that the cocain may be objectionable, and it may also be true in some cases that there is no particular reason why the substitution should be made, but there are instances in which it is of advantage—notably in the combination of cocain with eserine. Here the irritating qualities of the latter drug are to a large extent neutralized while its action on the iris and ciliary muscle is augmented.

This supplemental action of cocain (the writer endeavored to show) results from the alterations it produces in the corneal tissues—particularly in the anterior epithelium. Where strong solutions of the drug are instilled, especially if the eye be kept open, minute cracks may, after a quarter of an hour and with a strong lens, be seen running over the dried and dulled corneal surface in much the same manner that the

Hirschberg vessels, mapped out by a Coddington lens, appear in old cases of parenchymatous keratitis. When milder doses are employed, the dessication and separation of the protecting epithelium are not, it is true, so apparent but they are probably always to some degree present. It is not difficult to understand how this direct exposure of the channels of absorption in the cornea to fluids must result in a greatly increased effect upon the ocular organism. Before the drug has time to drain into the nose it flows into the corneal lymph channels, and hence into the other anterior vessels of the globe. Probably a similar, although less effective, absorption also takes place, and for the same reason, through the vascular systems of the conjunctiva.

These preliminary statements are made to introduce the study by the writer during the past six months of an apparently weak but very effective combination of cocain and euphthalmin. There are many reasons for regarding the latter remedy as one of the most valuable that has been made to our armamentarium for many years. We have long needed a pupil-dilator that shall be a mydriatic pure and simple, that shall be more rapid in its action than cocain, and not so lasting as homatropin.

Euphthalmin answers these requirements admirably, but there are at least two objections to it that interfere with its use to the extent that its merits deserve. The first is the expense of the agent. When the drug is used alone most observers speak of the need of instilling a 5 to 10 per cent solution—25 to 50 grains to the ounce. This makes the agent, from the dispensary and general practice standpoint, a very costly one. Then in nine-tenths of the cases it is used for ophthalmoscopic purposes only, and ten minutes' maximum dilation of the pupil is all that is needed, after which as prompt a return as possible to the normal pupillary size is desirable. A 10 per cent mixture of euphthalmin produces a needlessly prolonged mydriasis. These objections will be found to be removed in average cases if the following mixture, the result of some considerable experimentation, be employed :

Euphthalmin, {
Cocain muriate, } Of each one-half per cent in distilled water.

Two drops to be instilled every five minutes for a quarter of an hour. In from twenty to thirty minutes, the eyes being kept closed, most of the time, the pupil will be dilated to its widest extent, and this effect, again, will have disappeared in a much shorter time than if the stronger solutions of euphthalmin alone had been employed. In the former instance we have a sudden, sharp, but transitory action of the drug ; in the latter, a slower, quite as effective, but more prolonged mydriasis. C. A. W.

CORRESPONDENCE.

THE ETIOLOGICAL RELATION OF AUTOINFECTION AND AUTOINTOXICATION TO DISEASES OF THE EYE.

EDITORIAL SECRETARY OPHTHALMIC RECORD:

Dear Sir : In the latter part of the paragraph in the March number of the RECORD, page 155, referring to my paper on "The Etiological Relation of Autoinfection and Autointoxication to Diseases of the Eye," my meaning is not made quite clear. The following is what I said on sympathetic ophthalmia:

"I believe, with Professor Panas, of Paris, that sympathetic ophthalmia furnishes another illustration of autoinfection or autointoxication, not in the sense that it is a migratory disease in which germs are transported from the injured to the sound eye, as Deutschmann vainly endeavored to prove experimentally, but in the sense that the uveal tract of the sound eye, by reason of a lowering of its vital tone through the extreme reflex and vaso-motor disturbances kept up by a foreign body in, or injury to, the other eye, becomes truly poisoned or infected by materials in the general circulation to the extent of inducing a most obstinate and uncontrollable inflammation. More than half a century ago, that great pioneer in ophthalmic research, Mackenzie, of Glasgow, advanced the reflex theory of sympathetic ophthalmia. But it has hardly been deemed sufficient to account for all the phenomena of the disease. But to this, add autoinfection of the parts whose vital defenses have been withdrawn by the reflex disturbance, and we have, it seems to me, a full and rational explanation of the cause of this disease."

Yours, etc.,

ALVIN A. HUBBELL.

A SIMPLE EYESHADE.

TO THE EDITORS OF THE OPHTHALMIC RECORD:

Dear Sirs: By the following letter I am reminded that the proverbial Yankee smartness, which is supposed to be the birthright of



every American, was conspicuous by its absence when I attempted to appropriate the fruits of Dr. Robertson's ingenuity, or I would not have overlooked so many of the good points of the eyeshade. For the purpose of depicting the shape of the shade a photograph of one of the specimens sent by Dr. Robertson is inclosed.

The pains that this celebrated physician has taken to write the following letter, and to send specimens of the paper shade, proves beyond the shadow of a doubt that the typical Scotchman is kind as well as canny.

S. MITCHELL, M.D.

EDINBURGH, January 27, 1900.

Dear Dr. Mitchell: I have to thank you for the very kind and courteous way you allude to me in your paper on "A Simple Eyeshade" in THE OPHTHALMIC RECORD. I am glad you have adopted the simple method of shading the eyes which I have employed for about thirty years, but which except as regards the *shape* of the shade I do not consider at all original, as doubtless brown paper shades have been used from time immemorial. At the same time I think it very proper that the advantages of a simple paper shade over more elaborate contrivances should be widely known. Brown paper can easily be got in any household, and with scissors a suitable shade can be manufactured in a few minutes. One great advantage of the simple paper shade is that its shape can be modified so as to suit any special case.

I inclose three specimens of my shades. You will observe that a portion is cut away in the center below, which enables the patient to see more readily downwards by the side of his nose, while the "blinker-like" flaps on either side prevent the light striking the eyes from the sides. You may also notice that the upper edge of the shade is curved. The more the upper edge is scooped out the more is the shade tilted outwards, and thus gradually the shade may be altered to permit more and more exposure of the eyes to light. Tapes are sewn to the tips of the shade, one longer than the other, so as to tie at one side. The lightness too of the shade is a great recommendation.

Yours very truly,

D. ARGYLL ROBERTSON.

REPORTS OF SOCIETIES

CHICAGO OPHTHALMOLOGICAL AND OTOLOGICAL SOCIETY.

A regular meeting was held March 13, 1900, with Dr. Wescott in the chair.

Traumatic Cyclitis.—Dr. William A. Mann showed a patient who was hit in the eye by a chip from a block of wood some five weeks ago. The eye was greatly inflamed. Whether the anterior chamber is filled with blood or a blood clot, he could not say. He was inclined to the belief that there might be a dislocation of the lens. Vision is very defective in the injured eye, while in the other eye it is normal, and there is also normal accommodation. The tension in the injured eye is low. Patient does not complain of much pain, but the eye is very tender.

Discussion.—Dr. Pinckard said the injury must have been severe to keep the eye so greatly inflamed such a long time. He thought there might be a dislocation of the lens or fundus injury of some kind, although there is no way of determining it.

Dr. Hotz stated that a blow might cause a good deal of disturbance in the interior of the eyeball; that probably in this case there might be a dislocated lens, and the intraocular hemorrhage would fill the whole eyeball. He thought the cornea presented the characteristic streaky condition observed in long-standing cases of traumatic cyclitis. In such conditions absorption of blood takes place very slowly.

Dr. Mann, in closing the discussion, said he believed the man had sustained a serious injury to the eye, consequently the prognosis was bad, but whether the condition would clear up or not, he did not know. The condition of the eye had not changed in the last two or three weeks, although the blood clot was possibly a little lighter in color.

Dr. William H. Wilder reported a case of *extraction of congenitally dislocated opaque lenses, with presentation of the case*, reported in full on page 174.

Discussion.—Dr. Hotz said that about four years ago he had to remove a dislocated lens in the case of a man who had years before received a

small splinter of iron into his lens, causing cataract. The cataract finally assumed a very black character from the discoloration of the iron. One day the patient came to him, the suspensory ligament having ruptured, and the lens had dropped downward. He made an incision below and slowly let out the aqueous humor, calculating that the back pressure would force the lens forward near the incision, which it did, and then forced it out by pressure, with very little loss of vitreous, letting go the pressure as soon as the lens was in the incision. The patient made an excellent recovery, and with proper correction of the refraction vision was very good.

In regard to congenital dislocation of lenses, he had had under his care a boy with both lenses dislocated upwards, whose principal complaint, aside from poor vision, was diplopia. He treated him principally for the diplopia. Vision through the aphakic part of the pupil, when dilated, could not be brought above 20/100 at any time. Under the circumstances, he decided to do a needling operation. The lenses became opaque, and shrunk so that with the ordinary-sized pupil no more lens was visible. The eyes looked as natural as any child's eye, and vision now, four years after the operation, with + 11 is 20/40 in each eye, a very good result. He saw the case a month ago, because the parents brought him a second child, a girl, with the same congenital deformity, the lenses also dislocated upward, but in this case there was no diplopia. The lens border is about the pupillary center, and vision with correction is unsatisfactory so far, only about 20/100. In this case he thinks he will resort to the same procedure as in the first one to get the lenses opaque and out of the way, so as to have unobstructed aphakia.

Dr. Wilder, in closing, said that he would hesitate to resort to a needling operation in such cases, because the patient, as he looks through the aphakic pupil, is not troubled with it, and when cataractous changes develop in the dislocated lenses, it would be time enough to remove them. He could hardly agree with Dr. Hotz that it is best, if possible, to attempt to remove these lenses without instrumentation, because in the cases he has had, after quickly introducing the wire loop (which is slightly serrated on its inner surface, so as to not lose its hold on the lens), the lens can be brought up into the wound and extracted, with very little escape of vitreous. This he has found to be possible in two cases. Intraocular tension is decreased, and there is no danger of loss of vitreous. The ordinary wire loop is extremely valuable for this work, and he has had the one which is usually sold by the instrument makers modified for his own use.

Dr. Wilder presented a case of *diabetic retinitis* in a woman who came to him six or eight weeks ago. He found some impairment of vision which could not be remedied with glasses. Examination revealed retinitis, which appeared to be diabetic in type. Patient was referred to him by a prominent physician who had made a diagnosis of diabetes. Since then the urine has been examined several times with no evidence of albumin. This is the third case he has seen. In some cases it is difficult to differentiate it from the ordinary retinitis of chronic Bright's disease. If there are any distinguishing features, it would be that the plaques of degeneration are not so symmetrically arranged around the yellow spot. In this case the plaques of degeneration are situated in a zone around the optic disc. There are quite as many plaques to the nasal side as to the temporal side, and numerous hemorrhages are present. These plaques of degeneration are usually large and do not present the white, glistening appearance that is seen in typical cases of albuminuric retinitis.

Discussion.—Dr. Dodd said he has had the good fortune to see three cases of diabetic retinitis within a few months, two of which were pure diabetes, the other a mixed case. There is considerable dispute as to whether this form of retinitis is caused by nephritic changes or whether it is due to blood changes on account of diabetes. About four years ago he consulted the literature in regard to this subject and found that there were only forty-six cases recorded of pure diabetic retinitis at that time. The cases which he had seen were very much like the one of Dr. Wilder's in appearance. In one of them the diabetes had existed for nine years, in the other four, and the combined case of nephritis was one of long standing.

Discussion.—Dr. Pinckard saw a case of diabetic retinitis last summer in a woman, 65 years of age, who had had diabetes for many years. She had been treated in this country and in Europe with practically no benefit. Two months before he saw her she began to lose vision in one eye. The distribution of the degenerative plaques was somewhat similar to that noticed in the case of Dr. Wilder, that is, they seemed to be apparently more grouped around the nerve than the macula. The hemorrhages were far more abundant in his case and larger. The patient only remained in Chicago for a few months, and during that time no change took place. What ultimately happened he does not know, as the patient returned to the South.

Dr. F. C. Hotz reported a case of *profuse retrochoroidal hemorrhage after iridectomy for chronic glaucoma*. (See OPTHALMIC RECORD, March, page 115.)

Discussion.—Dr. Wescott said he had an exact duplicate of the case reported by Dr. Hotz, which occurred in his practice about a year ago. A patient, who had consulted Dr. Holmes thirty years ago for traumatism of one eye, in which the sight was practically lost from a serious injury to the cornea, came back because the fellow eye was rapidly failing and had been for a year or more. The man was 72 years of age, of gouty diathesis, and showed general arterio-sclerosis, the temporal artery being decidedly hard and firm. In this respect the case differed from that of Dr. Hotz. The tension was high, and on dilating the pupil with cocaine he found there was beginning cataract and glaucoma. A moderate cupping of the disc could be seen through the clearer portions of the lens, but otherwise there were no changes in the vessels of the fundus to attract particular attention. Iridectomy was advised with the hope of checking the glaucoma. The man was told that if this operation was successful the cataract would be extracted later, giving him better sight than would be possible in the other eye. Iridectomy was done under cocaine and holocaine anesthesia. There was practically no hemorrhage attending the operation. The morning following the operation the patient experienced considerable pain, and it was suspected that an atheromatous vessel had broken. On removing the dressing he found the wound distended by the cataractous lens. The lens with its capsule had come forward and was about one-third external to the wound. Patient was anesthetized with chloroform, and the lens was extracted without the loss of more than two or three minims of vitreous. The eye was dressed. As Dr. Wescott and Dr. Pusey were getting ready to leave the house, their attention was directed to a little stream of blood running from under the dressing down the temple. The dressing was removed, and it was found that the vitreous had practically escaped, with some blood still flowing. The eye was in a condition for immediate enucleation. It was not thought best to give the patient chloroform again so quickly. Patient was asked to consider the operation and declined any further interference. The eye healed after some time with moderate reaction, and perhaps two months after the accident Dr. Wescott saw him, when the eye was practically quiet.

Dr. J. E. Colburn said that in 1885-86 he had a glaucomatous pair of eyes to deal with. He operated on the right eye without accident and secured a very good result. Some four weeks afterward he operated on the left eye, and on account of a little nervousness on the part of the patient he dragged the iris out a little farther than he intended, but aside from that the iridectomy was smooth. At the end of the third day the

patient complained of severe pain, and he was sent for. He opened the dressing and found the lens in the anterior chamber; there had been extensive hemorrhage and the dressing was saturated with blood. A portion of the remains of the iris protruded with the hemorrhage, it having been forced down by the partially dislocated lens. Without any difficulty he removed the lens with his fingers, closed the wound for the time being, and the blood was absorbed. Four or five weeks later he snipped off a bit of iris which was protruding from the wound. He saw the patient about three years ago, and the eye had not given any trouble from the time of the operation. The eye he operated on first was in good condition; the vision had materially improved, and there had been no return of the glaucomatous condition. This was eight or ten years after the first operation. He thought he would have to enucleate the eye in this case. There was perception of light in the eye, with rather opaque lacework crossing the artificial pupil; the iris was drawn somewhat downward, and as near as he could determine the blood clot had been entirely absorbed, leaving only little filaments of lacework in the opening.

In 1892 he operated on an old woman for cataract. The first eye gave him a very easy operation. The second eye, which looked rather suspicious at the time of the operation on the first eye, he advised the removal of the lens because it was hypermature and beginning to give disturbance. He removed the lens, and during the night following the operation the contents of the eye were expelled. He thought it was much safer out than in, because it was only a question of time when the eye would have given trouble anyway. He enucleated the eye in this case the morning following the operation.

Dr. Hotz said he had always considered an iridectomy in a case of chronic glaucoma as a comparatively easy operation, one which would not ordinarily give any trouble, but after hearing reports of accidents in such cases as had been reported, he thought differently. In the case reported by Dr. Colburn he thinks the hemorrhage must have commenced in the anterior part of the choroid so as to crowd into the vitreous and the smaller vessels. But in the cases of Dr. Wescott and his own it must have been a good-sized vessel, rupturing with such force as to press the whole vitreous forward. He did not know whether the cases of Dr. Colburn were acute or chronic.

Dr. Colburn replied that they were chronic.

Dr. Hotz said that stress should be laid on the acute cases, because in them hemorrhages were more likely to occur on account of the vessels being more engorged than in the slowly proceeding chronic cases. In

his case he was told by the daughter of the patient that there were unmistakable signs of hemophilia in the family, although this could not be elicited in the history of the mother.

Dr. H. M. Starkey mentioned a case of chronic glaucoma that he had had under observation for several years, Dr. Mann having seen the patient with him. He found that spontaneous rupture of the eyeball with escape of the contents had taken place. The patient bled profusely. She suffered terrific pain before the eyeball ruptured. The spontaneous hemorrhage occurred in the degenerated eye without any accident or without any violent exercise.

Dr. Pinckard asked whether the rupture occurred at a right angle to the sclero-corneal margin or whether it was concentric with the cornea.

Dr. Mann said it occurred along the border of the iris in a concentric direction.

Dr. Pinckard reported a similar case of spontaneous rupture, saying that the night nurse was awakened by a scream from one of the wards; she went to see the patient, an old lady, with chronic glaucoma, and found that spontaneous hemorrhage had taken place, the rupture having occurred near the sclero-corneal junction. It was not concentric, as one might expect it to be, but at a nearly right angle to the corneal margin. He enucleated the eye the next day.

Dr. W. F. Coleman reported the following case:

About a year ago, Dr. Paul Walter called to ask his advice in regard to Mules' operation. Dr. Coleman's experience was adverse to it, but if he wished to try the insertion of a ball, he would suggest that a perforated aluminum one be used, and it might be more safely inserted in Tenon's capsule than in the sclera. Some three months later, Dr. Walter again called, and reported that on the 15th of May last he removed from Mrs. C. the left eye, which had been destroyed two years previously by an accident and had continued to suppurate since.

"The conjunctiva was dissected back, the muscles picked up and ligated and the eye enucleated. This was followed by irrigation with one gallon of sublimate solution 1-4000. An aluminum perforated ball that had been carefully disinfected was placed in Tenon's capsule and the muscles, then the conjunctiva were brought forward over the ball and stitched. Boric acid and formalin dressing applied. Healing rapidly followed and was attended by very little reaction. Five weeks later a slight purulent discharge appeared. Upon examination the aluminum ball was found corroded, half of it having disintegrated, and appeared like soft mud. The other half was much corroded. The remains of the

ball were so adherent that in order to remove it it was necessary to use the curette. By the use of disinfectants the eye healed in a few days, but during that time the patient suffered a good deal."

SECTION ON OPHTHALMOLOGY.

COLLEGE OF PHYSICIANS OF PHILADELPHIA.

Meeting February 20, 1900. Dr. George C. Harlan, Chairman, in the chair.

Dr. William Campbell Posey read a paper on *Mental Disturbances after Operations upon the Eye*. Twenty-four cases of delirium were reported. In 19 of these the mental symptoms developed after the removal of cataract, in 3 after iridectomy for glaucoma, and in the remaining 2 after extensive wounds of the eye. Three of these cases were in subjects over 80 years of age, 6 over 70 years, 9 over 60 years, and 2 during the sixth decade. The traumatic subjects were much younger.

The delirium appeared during the first twenty-four hours after the operation in 2, on the second day in 8, on the third day in 6, and on the fourth day in 2. No atropin was used in 6 instances; in 4 others it was not employed until the delirium had manifested itself, and in the others it was instilled at the time of the operation. Its employment did not seem to have any influence whatsoever upon the mental condition. Both eyes were bandaged after the operation in every instance, but the dressing was removed from the unoperated eye in nine cases as soon as the delirium manifested itself, without giving any appreciable relief to the mental condition.

It was specifically noted in nine cases that there was absolutely no tendency toward mental derangement. Evidence of previous tendency was present in only two senile and in the traumatic cases. All of the eyes made good recovery except in two cases—one of panophthalmitis and one of traumatic irido-cyclitis.

The delirium was of the same character in all, beginning with a mild restlessness, which rapidly developed into an active delirium with hallucinations and ideas of persecution, but passing rapidly under control by the proper administration of narcotics; permanent affection of the brain being remarked in not a single instance.

The writer believes that the cause of the delirium is largely psychical, and he agrees with Parinaud that it is due to the preoccupation upon the part

of the patients prior to and after the operation. What the other factors are, which in addition to the preoccupation determine the delirium, are as yet unknown. The frequency with which the delirium is encountered should, however, be recognized, and proper treatment, namely, chloral and bromides, be administered at the first indication of its appearance. Removal of the bandage from the unoperated eye and discontinuance of the use of atropin are not advised.

Constant oversight and judicious, tactful nursing are most essential, and rapid amelioration in the mental condition frequently follows the installation of a proper person by the bedside.

Discussion.—Dr. de Schweinitz said that the most pronounced case he had ever seen occurred in a man aged 59, upon whom he had performed Förster's operation for the artificial ripening of the lens of one eye, and one month later extracted the opaque lens. The man had nuclear cataracts, and vision, except in the central portion of the field, was good. He had organic heart disease, and for several years before the operation had considerable family trouble. Both eyes were bandaged after operation. On the second day maniacal delirium developed, followed by dementia lasting for two months. Under large doses of nitroglycerin the mental symptoms disappeared, and he eventually secured vision of $\frac{6}{9}$. Two years later the man returned to have the naturally ripened cataract upon the other eye removed, and begged that he might be allowed to have the good eye unbandaged after operation. This was done, and he made a rapid recovery without mental disturbance. Dr. Zimmerman stated that while resident at Wills Hospital he had seen numerous cases. The custom at that time was to unbandage the sound eye and get the patient out of bed at the earliest possible moment after the onset of mental aberration. Dr. Veasey also reported mental symptoms after two cases of operation—one a patient upon whom the rolling operation was performed for granulated lids, and the other a case of senile cataract. In both instances the delirium subsided upon the removal of the bandage from the unoperated eye. On the other hand, Dr. Randall had removed the bandage in order to check delirium in a cataract patient with absolutely no result, the delirium continuing uninterruptedly for four or five days. Dr. Harlan stated that the delirium had many types and causes, and that no one explanation would be satisfactory for all cases; therefore the treatment must be diversified to meet individual requirements. Dr. Posey referred to a recent article by Dukes, to the effect that the restlessness of old people is due to the gradual age—failing of the scavenger organs, and that it is owing to their incompetence that the blood is not suffi-

ciently depurated, and arterial tension increased. This author believes that the remedies best adapted to calm these individuals are those which relieve the arterial tension, such as nitroglycerin, though he adds that he found erythrol tetranitrate, gr. ss to gr. j, to be even more valuable.

Dr. de Schweinitz read a paper entitled *Concerning the Preparation of the Stump after Complete Enucleation of the Eyeball*. He first reviewed some of the substitutes which have been advocated for enucleation, viz.: optico-ciliary neurectomy; sclero-optic neurectomy (Ernest Hall); evisceroneurectomy (Huizinga); simple evisceration (Noyes, Graefe); evisceration with the insertion of an artificial vitreous (Mules); implantation of a glass or metal globe in Tenon's capsule (Frost, Lang); abscission (Critchett, Knapp, de Wecker); and complete keratectomy (Panas). Of these various procedures in suitable cases he preferred Mules's operation; but believed that in a certain number of instances complete enucleation would always be required, and that therefore all attention should be paid to improvement in the technique of the operation and the manufacture of artificial eyes.

After describing Meyer's and de Wecker's method of performing enucleation, and condemning Czermak's dictum that sutures shall be disregarded, Dr. de Schweinitz described the methods of suturing the tendons with the conjunctiva after enucleation which have been advocated and practiced by Würdemann (1893), Suker (1895), H. Schmidt (1897), Priestley Smith (1899), and himself. His own method of preparing the stump after enucleation he described as follows:

After insertion of a speculum, which widely separates the lids, the conjunctiva is divided as close as possible to the corneal margin; each rectus tendon is next exposed and caught upon a hook, as in the operation for strabismus, and is secured with a double-armed black silk suture, which is knotted upon it. The eyeball is now enucleated with the least possible disturbance of the relations between the conjunctiva and the underlying structures, and a small ball of sterilized gauze is inserted into the capsule of Tenon, in the manner in which a Mules sphere would be placed in the operation of implantation. Each rectus tendon is now drawn forward to the edge of the cut conjunctiva, and securely fastened with the ends of the same suture which had originally secured the tendon and which have been left long. That is to say, the tendon is brought forward precisely as it would be in the operation of advancement. The wad of sterilized gauze, which has served its purpose of checking entirely the hemorrhage, and keeping for the time being the cavity bulged out as it was when occupied by the globe, and therefore has facilitated the

advancement of the tendons, is now removed, and the edges of the conjunctiva and capsule of Tenon are united with interrupted sutures.

Primarily the movement of the conjunctival bed is certainly better after this, and the other operations, which in one way or another prevent retraction of the tendons of the ocular muscles, than after ordinary enucleation, and it seemed also that the prosthesis is more prominent and natural, and that unhealthy conjunctival secretion is lessened. Charts illustrating the rotations of the artificial eye resting upon stumps prepared in various ways were exhibited.

Discussion.—Dr. Harlan stated that in his early experience at Wills Hospital, it was the custom to bring the edges of the conjunctiva together with sutures after cases of enucleation. Dr. Hansell believed that operators uniformly endeavored to secure a stump upon which the prosthesis would rest, and by which it could be moved; but after a well-performed enucleation there is no stump; that the movement and setting of the eye will depend solely upon the movability of the conjunctival membrane upon which the eye rests, the movability depending upon the attachment at its center posteriorly of the four recti muscles. He has secured fair cosmetic result, and good rotation of the eye, and a clean, non-discharging conjunctival surface by suturing each straight muscle to the conjunctiva and capsule as the first step of the operation.

Dr. Charles Lukens reported (by invitation) a study of 18 cases of *Foreign Body in the Eyeball*, in 16 of which an attempt to remove the metal was made. In 2 cases the metal was in the anterior chamber, in 3 in the iris, in 5 in the crystalline lens, and in 8 in the vitreous chamber. Good vision followed the removal of the metal in 9 of the 10 cases in the anterior segment of the globe, while of the vitreous cases attempts to remove the metal were made in 6 cases, with success in 4 instances, vision equaling $\frac{6}{9}$, $\frac{5}{8}$, $\frac{1}{40}$, and light perception. In one case a piece of steel had remained quiescent in the vitreous chamber for 26 years, irido-cyclitis following a recent traumatism.

Dr. de Schweinitz described a *Foreign Body (Metal) which had Remained Quiescent in the Choroid of a Practically Blind Eye for Eighteen Years*, when, without apparent cause, irido-cyclitis began and threatened the other eye. The body was accurately localized by means of the Roentgen rays, according to Sweet's method. The magnet momentarily brought the body to the lips of the incision, but could not dislodge it from the tissue in which it was incased, either then or after the enucleated eye had been opened by a meridional section. The piece of metal was 1.5 mm. long, and 1 mm. in thickness.

Discussion.—Dr. Oliver described in greater detail Case No. 11 in Dr. Lukens's paper, in which the diagnosis of the location of the foreign body had been made by the direction of the scleral cut and the relative positions of the lips of the wound, in association with the assertions of the patient as to the angle of the receipt of the blow, and the diminution of the visual field to the nasal side, thereby confirming by this method the accuracy of Dr. Sweet's diagnosis by X-rays. Dr. Sweet believed that when the metal entered the vitreous chamber without sufficient inertia to imbed itself in the retina or choroid, its successful removal by the Hirschberg magnet may be expected even after a considerable time. He instanced three cases of this character, in one of which the body had been removed with good vision seven months after the accident. When, however, the metal is imbedded in the retina or uveal tract, a firm exudate may form in a short time. In one case a piece of steel 8 mm. long by 2 mm. broad, imbedded in the choroid for five weeks, could not be secured by the magnet, and even after enucleation the metal was only faintly attracted by the magnet point, and could not be dislodged from the exudate surrounding it.

Dr. Sweet exhibited a number of photographs which he had received from Dr. J. Mackenzie Davidson, of London, illustrating the apparatus and method so successfully employed by the latter in the localization of foreign bodies in the eyeball and surrounding structures.

Dr. Zimmerman referred to a case of a piece of copper which had remained in the anterior portion of the vitreous for many years without causing inflammatory symptoms. Dr. Harlan had also seen a piece of copper cap remain quiescent in the eye for years. Dr. Hansell referred to a boy who was struck in both eyes by powder grains and sand. The blow was so violent that the capsules of the lens were ruptured and probably some of the foreign material had entered the anterior chamber. When seen in consultation, some weeks after the accident, the external wounds had healed, the anterior chambers were partly filled with swollen lens substance, the pupils were dilated and the irides immovable, T. + 2, and sight reduced to perception of light. The broken lenses were forced out through corneal incisions, eserine instilled, the eyes bandaged, and the patient put to bed. Some months later with cataract glasses his vision was normal.

A Study of the Changes in Refraction in 400 Eyes during Seven Years.—Dr. Howard F. Hansell tabulated 200 consecutive cases of refraction from his private case-book that had returned for a second examination in

periods varying from two to sixteen years. The eyes examined were free from disease of all kinds, and the patients made no ocular complaints that were not referable to defects of refraction. He called attention to the following conclusions: Among the 400 eyes there were 249 hyperopic of which 94 showed no change, and 114 myopic of which 37 showed no change; 141 showed increase in their refraction and 119 decrease, thus verifying the accepted observation that the tendency to increase in refraction is exhibited in more eyes than a tendency to decrease. Among the hyperopes there were 69 decreases and 180 increases, while among the myopes 8 only decreased and 107 increased. Of the 34 eyes with mixed astigmatism 28 changed in their refraction, the majority demanded an increase in the strength of the glasses needed for the correction of both the principal meridians. The 200 patients represented an equal number of the male and female sex, and the changes found were almost equally divided between them. Occupation had only a very slight influence upon the increase or decrease in refraction. High grades of defect had a less tendency to change in their curves than medium or low defects, and increase of refraction was greatest in the third decade of life, with the first decade as a close second, and after the 30th year the proportion of increases showed a rapid decline. The decrease of refraction was at its minimum in the fourth decade, and in later years the tendency to decrease became more marked; the increase in refraction was most marked in the second decade, including 50 per cent of the eyes, and afterward became rapidly less, while the decrease in refraction was most marked in the sixth decade, although found to exist in all seven decades.

Discussion.—Dr. Randall stated that probably a close examination of the cases in which the rapid decreases in refraction occur would show that they did not extend over a series of years, but, on the contrary, occupied a comparatively short time, and might be traced to irregular action of the ciliary muscle and temporary loss of relation between the accommodation and convergence.

Dr. Edward A. Shumway reported (by invitation) a *Case of Diffuse Punctate Condition of the Fundus*. The patient, a colored woman 35 years of age, married, had shown the condition seven years. There was a marked family history of migraine, aggravated in her case by long ill-health. The entire fundus in both eyes was studded with closely aggregated, dull, yellowish white spots, soft in outline, varying in diameter from that of a retinal vessel to several times this size. There were no pigment deposits in the retina, nor any areas of choroidal atrophy. The

vision with correction : O. D. $\frac{6}{6}$, O. S. $\frac{6}{5}$. Fields showed no contraction or scotomata. No history of night-blindness. They were thought to be due to a colloid change in the cells of the retinal pigment layer.

WILLIAM M. SWEET,

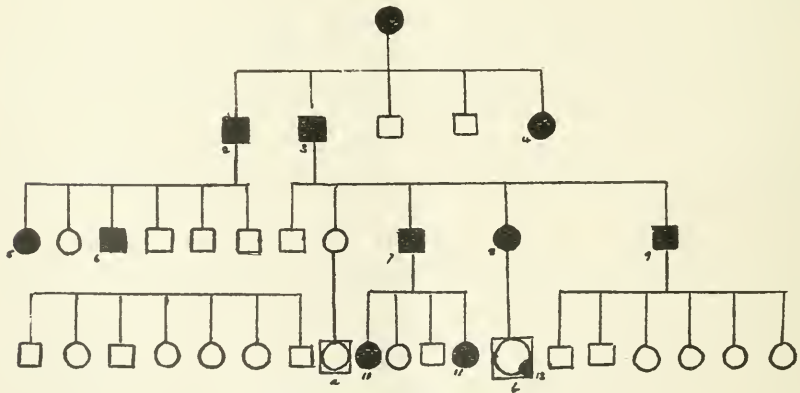
Secretary of Section.

OPHTHALMOLOGICAL SOCIETY OF GREAT BRITAIN AND IRELAND.

THURSDAY, MARCH 8, 1900.

C. Anderson Critchett, F.R.C.S.E., President, in the chair.

Mr. W. M. Beaumont (Bath) read details of a *Series of Twelve Cases of Ophthalmoplegia Externa*, occurring in four generations of an otherwise healthy family. This was no doubt due to nuclear disease limited to a small area. It was never congenital, but came on in adult life, and slowly progressed until all the external ocular muscles were affected. Ptosis occurred in all and was an early symptom, but there was never ophthalmoplegia interna. In the advanced cases there was great weakness of the orbicularis palpebrarum. There was no other paralysis, nor were any of the special senses affected.



Pedigree of the D family

a Simon children, sex unknown
to sixteen children, sex of one known

Male ☐
Female ☐

The first case, the ancestress of the family, died in extreme old age; her son died aged 90, while another died at the age of 85. One of the family had been shown to the Society by Mr. Lawford, and the case is recorded in *Vol. 7 of the Transactions*. Photographs of most of the others were shown, and they all had ptosis.

Mr. Beaumont thought that this was the first time that a family of twelve had been recorded suffering from this condition, and he regretted that, owing to time and space (time, because the cases were spread over four generations, and space, because they were spread over four quarters of the globe), prevented him from giving fuller details.

Meningitis Followed by Panophthalmitis.—Mr. A. Quarry Silcock, in reading this paper, said that the interest in this case lies chiefly in the fact that both eyes were affected by a diffuse inflammatory change (panophthalmitis), the result of general septicæmia, and in so early a stage of the latter as to constitute one of its most prominent signs.

The man, aged 35, was admitted to St. Mary's Hospital, under the care of Dr. Cheadle, on October 14, 1899. He was well and at work until October 4th, when he was taken with shivering fits, pains in the chest, headache, cough with blood-stained sputum, and delirium at night. Since October 7th he had persistent pain in the back of the neck. He answered questions intelligently, complained of headache and pain in the chest; temperature 101° . There were no symptoms of cardiac lesion, nor any obvious lung change affording an explanation of the patient's condition. On the 15th, the day after admission, it was noticed that the right eye was inflamed (uveitis and hypopyon, chemosis of the conjunctiva). In the left eye the media were turbid, impeding a view of the fundus. The right eye was proptosed.

On October 16th Mr. Silcock, after consultation with Dr. Cheadle, excised the eye, hoping its examination would throw some light on the nature of the infection. This was done by Mr. Plimmer, who found that the infection of the eye was due to the streptococcus lanceolatus.

The man became rapidly worse, and died in a semi-comatose condition on October 17th. Post-mortem examination showed extensive basic meningitis and sub-arachnoid hemorrhage in the lower dorsal and lumbar regions, recent vegetations on the aortic valves, and embolic lesions in lung and spleen. The proptosis of the right eye was clearly due to œdema of the orbit. The examination of the eyes (the left was examined by Mr. Marshall) showed purulent panophthalmitis, but whether this condition was secondary to meningitis or was a part of the septicæmic condition was uncertain.

The President remarked on the extreme rarity of the case, and said that he had never seen one in which both eyes had been affected.

Mr. Richardson Cross, although he had never seen one in which both eyes had been affected, had had one case under his care in which one eye was lost during an attack of epidemic cerebro-spinal meningitis, and he read notes of this case.

Mr. Nettleship said he had never seen a case like Mr. Silcock's, but he had seen one similar to that described by Mr. Cross, the patient being a girl of about 10 years of age. He had also published a case in Vol. 5 of the Society's Transactions.

Mr. Treacher Collins had published a case of acute irido-cyclitis, followed by meningitis and associated with ear disease.

Mr. Holmes Spiler mentioned a case of suppuration of both eyes, which was due to a septic uterine condition following abortion.

Pigmented Tumor of the Eyeball; Death from Multiple Pigmented Carcinoma nearly Fourteen Years after Excision of the Eye.—Mr. Herbert Fisher and Dr. Charles R. Box described a case of primary pigmented tumor of the eyeball, for which the eye was excised in the year 1885, the patient being a man at that time aged 42.

Fourteen years later he was readmitted into St. Thomas's Hospital, with great enlargement of the liver accompanied by jaundice, abdominal pain, sickness and diarrhœa, and œdema of the lower extremities. For fifteen months the abdominal swelling had been progressing, with general weakness and loss of flesh. The patient died, and a post-mortem examination showed that the liver was almost replaced by a nodular mass of melanotic growth weighing 12 pounds 6 ounces. There were also a few pigmented growths in the left parietal pleura. A small pigmented growth the size of a pea sprang from the myocardium and projected into the right ventricle.

Microscopic examination of the liver growths prove them to be melanotic carcinoma, and not sarcoma, as had been expected.

Fortunately, the eye containing the growth had been preserved, and Mr. Treacher Collins was able to obtain sections of it. He reported the growth to have originated in the ciliary processes, and to have extended thence into the iris and through the sclerotic. The cells were pigmented to a varying degree; they were small, polygonal and of an epithelial type, and from their arrangement in rows Mr. Collins gave it as his opinion that this growth was carcinomatous in character.

It was decided to submit the sections to a pathological committee of the Society for further examination and report.

The President remarked on the extreme rarity of the case.

Mr. Collins spoke at length supporting his view as to the origin and nature of the primary growth.

Mr. Devereux Marshall, although expressing no opinion as to the nature of the primary growth, said he had never heard of a case in which a true cancer had remained dormant for fourteen years, though he had seen and published a case in which a patient had died of metastatic sarcoma eleven years and five months after an eye had been removed for sarcoma.

Dr. Box added some details of the case and Mr. Fisher briefly replied.

Green Vision.—Mr. H. Work Dodd said that some months ago he exhibited a patient before the Society who saw everything green, and since that time he had collected thirteen published cases of this condition.

In reviewing these, he came to the conclusion that neither sex nor age had to be specially considered, and that errors of refraction and their effects may be excluded.

The condition of the general health is noticeable in seven of the cases; two suffered from migraine, two from syphilis, and three from chronic lead poisoning.

Ten of the cases showed some departure from the normal in their ocular structures, such as wounds, detachments of retina, choroiditis, optic atrophy, neuro-retinitis, as well as tortuosity of the retinal vessels.

With the exception of two cases following, one a wound and the other an operation for cataract, the abnormalities are connected with the optic nerve and retina.

As to the reason why these people have green vision, these cases give but little information. It should, however, be noted that the macular region of the retina in three of the cases is the part affected, and in two of the others the temporal side is indicated as being particularly disturbed. Looked at in the light of our knowledge of the conditions existing in tobacco amblyopia, possibly the same tissues are affected in the two conditions.

Two of the cases in which green vision was only noted when the patients were indoors, seemed to depend on the character or degree of the illumination.

The following card specimens were shown:

Mr. Lawford.—Growth (?) tubercular in the macular region.

Mr. E. Treacher Collins.—Unusual changes in the macular region.

Mr. N. Bishop Harman.—Central choroiditis.

C. DEVEREUX MARSHALL.

SAN FRANCISCO SOCIETY OF EYE, EAR, NOSE AND
THROAT SURGEONS.

FEBRUARY MEETING.

The President, Dr. Henry L. Wagner, in the chair.

Dr. W. F. Southard presented to the society a man aged about thirty, whose case illustrated *the extensive ravages of syphilis of the throat and larynx*.

The President stated that the subject announced for discussion at this meeting, *Anomalies of the Ocular Muscles*, was in order, and asked Dr. Eaton to open the discussion.

Dr. Eaton assumed that the subject would be confined to the lesser anomalies, i. e., to heterophoria. As thus limited it is one about which it is easy to say too much. As between the younger and enthusiastic and the older and conservative oculists, he believed the truth belonged absolutely to neither. Certain kinds of improved apparatus are necessary for rapid and accurate work, such as an optometer of the type devised by Dr. S. D. Risley, double rotary prisms, etc. He wished to call attention to two conditions which are easily overlooked unless the prism adduction and abduction for near are carefully measured. The first is where there is found by the Maddox rod and other so-called balance tests, orthophoria for distance, when there exists a high grade of convergence insufficiency in accommodation. In the other condition, on testing at the usual reading distance with a prism, base up or down, the normal exophoria for near was frequently found, i. e., 5 degrees, or even less, when in reality the relative range of convergence is very low, as is also the range of accommodation, and it is the subnormal accommodation that conceals the defective convergence. If convex glasses are worn during the near test for exophoria, the latter may amount to 15 or 20 degrees. The teachings of Donders are too much neglected.

Dr. Martin frequently had patients who had been in the hands of the opticians, who had given them prisms to wear. In the case of one lady the optician had inflicted a pair of 10-degree prisms, bases out. On taking away the prisms, and sending her to the country to recuperate, she was soon able to dispense with the prisms. He saw many persons wearing prisms of 3 and 4 degrees, generally bases out. Dr. Southard said that the subject is a very wide one. He also had seen cases of orthophoria for distance with latent exophoria for near; in one case it amounted to 18

degrees. There are many neurasthenics who lack innervation of the nerve centers. He had made many examinations of patients recovering from wasting diseases and found them suffering with latent divergence in accommodation. It is difficult to tell the actual adduction for distance. Five or six years ago he had showed Dr. Gould, of Philadelphia, his method of developing the range of convergence without the use of prisms, and by approaching a candle to the patient and gradually withdrawing it. It is very unwise to allow persons who are convalescing from severe illness to read much.

Dr. A. B. McKee considered this a difficult subject. In one case of his with asthenopia he had found nothing abnormal with the eyes or general condition, and no neurasthenia. Latent divergence occurs in perfectly healthy persons. Abnormal conditions of the muscles occur often without asthenopia. Many patients, in his experience, are victims of digestive troubles. Dr. Noyes had even stated that some neurotic individuals never recover.

Dr. A. Barkan had not seen anything demonstrated by the leaders of the present muscle movement that convinced him. In cases of asthenopia he advocated a fair refractive correction and attention to the general health, and is a strong believer in the value of the morning cold bath. There should be no reading in bed, and asthenopics should not when recovering from sickness be allowed to read longer than half an hour at a time.

A motion made by Dr. Barkan was carried directing the President to appoint a committee of two to demonstrate at the next meeting the eye-muscle tests now in vogue.

The President appointed as such committee Drs. Eaton and Hulen.

HYSTERIC BLINDNESS.—Some cases reported by W. O. Moore are discussed with the diagnosis, treatment, and nature of the condition. He thinks that in all of his cases the assurance of the discovery of a cause was an important factor in the cure. In every one an operation or shock was sufficient to relieve. The patient should be removed as far as possible from immediate relatives and environment, and the treatment, aside from this, is the use of such remedies and measures as are capable of startling and surprising the nerve-centers.

Abstracted by the *Journ. Amer. Med. Asso.*

NEWS ITEMS.

*Personals and items of interest should be sent to
Dr. Frank Allport, 92 State St., Chicago.*

DR. LYMAN WARE, of Chicago, has been visiting at St. Louis.

DR. CASEY A. WOOD, of Chicago, has been East for about two weeks on a vacation.

PROF. CESARE PAOLI has been appointed the successor of Prof. L. Guaiti at the University of Sienna.

DR. CLEGG J. GRAY has received the appointment of assistant surgeon to the Manchester Royal Eye Hospital.

MR. F. A. C. TYRELL has been appointed junior surgical officer at the Royal London Ophthalmic Hospital.

IT is understood that the recent operation upon Premier Crispi, of Italy, for cataract, has proven to be a failure.

DR. F. VON BIRSCH-HIRSHFIELD, the eminent pathologist, professor at the University of Leipzig, died November 20th.

DR. WALTER H. PETERS, of Lafayette, Ind., has been appointed special pension examiner in eye and ear cases for that district.

DR. EDWARD THOMPSON, of Cincinnati (Ohio) Medical College, 1899, has been appointed resident physician to Dr. Holmes' Hospital.

DR. H. L. DICKEY, Charlottetown, P. E. I., has been appointed to the eye, ear, nose and throat department of the Charlottetown Hospital.

THE Superior Court, March 6th, selected Dr. C. R. Holmes a member of the Board of Trustees of the Cincinnati Hospital, in place of Dr. John A. Murphy, deceased.

THE English translation of Bandry's treatise on "Injuries of the Eye in Their Medico-Legal Relation," edited by Dr. Charles A. Oliver, of Philadelphia, will be issued very shortly.

DR. CHARLES A. OLIVER, of Philadelphia, has written the chapter on "Color Sensation and Color Blindness" in the *Reference Hand-Book of the Medical Sciences*, which has recently been published.

HARVEY K. WINGERT, M.D., an eye specialist of Knoxville, Tenn., died March 5th after a brief illness. He was a graduate of the medical department of the University of Michigan, and was 30 years of age.

PRESIDENT KRUGER, of South Africa, is reported to be suffering from obstinate chronic catarrhal conjunctivitis, said to have arisen from excessive smoking. He smokes constantly, except when he sleeps and eats.

THE annual report of the Episcopal Eye and Ear Hospital, Washington, D. C., for the year ending January 1st, gives the total number of patients treated as 1,564; visits, 6,596; operations, 243; house patients, 158.

ALTHOUGH Mr. Simeon Snell has been obliged to resign the editorship of the *Quarterly Medical Journal* from overpressure of professional business, he will still continue, as heretofore, to direct the department of ophthalmology.

AT a meeting of the board of directors of the Chicago Eye, Ear, Nose and Throat College, Dr. A. G. Wippert was elected vice-president and treasurer, and Dr. William L. Ballenger was reelected to the chair of otology, rhinology and laryngology.

THE headquarters of the *Section on Ophthalmology* of the American Medical Association, meeting in Atlantic City, June 5th to 8th, will be at the hotel known as "Haddon Hall." Those desiring rooms at headquarters should write immediately to the proprietor.

AT a recent meeting of the Brainerd District Medical Society, held at Jacksonville, Ill., Dr. J. Whitefield Smith, of Bloomington, read a paper on "Extradition of the Blind." Dr. A. L. Adams, of Jacksonville, at the same meeting, read a paper on "Sympathetic Ophthalmia."

AT THE last annual meeting of the San Francisco Eye, Ear, Nose and Throat Society the following officers were elected: President, Dr. Henry L. Wagner; First Vice-President, Dr. F. B. Eaton; Second Vice-President, Dr. George W. Merritt; Secretary, Dr. R. L. Cox; Treasurer, Dr. Kaspar Pischl.

A SERIES of "Emergency Lectures," for the benefit of the Cuban Orphan Society, are being given in Philadelphia. Amongst them we notice one by Dr. George E. de Schweinitz on the "Hygiene of the Eye," and another by Dr. Ralph W. Seiss on "Common Diseases of the Ear, Nose and Throat."

A STRANGE ACCIDENT.—Dr. Peters saw a boy one year after he had fallen, a piece of wood of lead pencil size having penetrated the eye, causing loss of sight upon one side and momentary cerebral symptoms. Upon examination and incision a previously undiscovered splinter of considerable size was found penetrating the orbit.

THE late Dr. E. L. Holmes, of Chicago, left an estate valued at \$55,000. Of this \$50,000 was in personal property, consisting of cash, promissory notes and life insurance. It was directed by the testator that all of his estate should be converted into cash as soon as possible, and divided into five equal shares among his five children.

REMARKS ON THE HOLMGREN WOOL TEST: IS IT ADEQUATE FOR THE DETECTION OF COLOR BLINDNESS?—Thomas H. Bickerton declares that the Holmgren wool test is by no means a certain discoverer of the lesser forms of color blindness. To insure certain detection of all color defects, a quantitative test for color is required in addition.

AN outbreak of ophthalmia has broken out at the Liverpool workhouse. The affected cases have been farmed out and isolated, to the great mitigation of the disease. The ignorance of parents is held to be largely responsible for the outbreak. Valuable bacteriological and pathological investigations have been made by the Thompson-Yates laboratories.

AMONG popular lectures delivered in Chicago recently, under the "Free Lecture Course," which was inaugurated by the *Chicago Record*, were lectures in different parts of the city on the "Care of the Eye," by

Drs. J. E. Harper, Casey A. Wood, Frank Allport and T. A. Woodruff. Dr. Allport also recently delivered a lecture before the Chicago Academy of Sciences on the "Municipal Control of School Children's Eyes."

THE PRACTICAL APPLICATIONS OF LARGIN IN DISEASES OF THE EYE.—Sydney Stephenson says that the application of largin, even when concentrated, is painless; if prolonged beyond a few weeks, it may stain the conjunctiva. It acts well in blepharo-conjunctivitis, and in some cases of dacryocystitis. It is an efficient substitute for silver nitrate in any of the conjunctival inflammations associated with the Koch-Weeks bacillus.

FOR those who operate a good deal a useful hand lotion may be found in the following:

- 4 oz. of alcohol.
- 1 oz. of spirits of ammonia
- 1 dr. of oil of lavender.

Keep it on your washstand, and pour a teaspoonful into a bowl of warm water.

THE DENVER OPHTHALMOLOGICAL SOCIETY.—This society will celebrate its first anniversary in April. The object of the organization is "the study and discussion of the branches of medical science in which the members are especially interested." Only those are accepted as members who are entitled to representation in the American Medical Association. The officers are: Chairman, Edward Jackson; Secretary, E. W. Stevens; Treasurer, W. C. Bane.

THE forty-third annual meeting of the Bradford Eye and Ear Hospital of Bradford, England, was held February 16. The Mayor of Bradford presided. They report 15,000 patients in all, of which 992 were in-patients; 970 major operations were performed, of which 116 were flap operations for cataract, and 28 were for the removal of the lens in high myopia. The income of the hospital was £2,454; expenses, £2,835. They possess £15,000 of invested funds.

THE Royal Victoria Eye and Ear Hospital of Dublin held its annual meeting February 13. Mr. H. R. Swanzy presided. A beautiful new site has been secured for this hospital on the Adelaide road, where no building has previously been located. A new building on this high piece of ground

will soon be erected that will be modern in every respect. It will contain 120 beds, besides ample accommodation for nurses. A separate building will be provided for the treatment of out-patients.

THE SENSIBILITY OF THE BLIND.—The popular impression that the blind possess a more acute sensibility for tactile impressions is not supported by the numerous and carefully made observations of Professor Greisbach, of Basle. The tips of the fingers of those who see are more sensitive than those of the blind. There is no difference between them in regard to the senses of smell and hearing. Those who can see can work longer and to better effect than the blind.—*Lancet*.

MANY valuable ophthalmologic essays written in the German language are published by the *University Press* in the form of "Inaugural Dissertations." These are mostly by the younger men, and are largely statistical, being compiled from the voluminous records of the university eye clinics. We take pleasure in publishing in this number of the *Annals* abstracts of a number of these, from the University of Giessen, made by Dr. Charles Zimmermann, of Milwaukee.—*Annals of Ophthalmology*.

AN interesting series of articles has been recently appearing in the *London Lancet* on "The Anatomy and Pathology of the Eye," by Treacher Collins. They are what is known as the Erasmus Wilson lectures, and have been delivered at the Royal College of Surgeons of England, February 12th, 14th and 16th. They are written in this distinguished author's clear and practical style, and should be widely read. We suggest that they be published in pamphlet form, so as to be tangible to the profession and convenient for a library.

SPECIAL COURSE IN OPHTHALMOLOGY.—Beginning on Monday, April 16, 1900, a special course in ophthalmology will be given to medical practitioners by Dr. James Moores Ball, of St. Louis, assisted by a corps of competent instructors. The duration of the course will be six weeks. It will include didactic lectures, recitations, and clinical demonstrations.

Dr. Ball has at his disposal a few free beds for the deserving poor who are afflicted with glaucoma or cataract. Applicants for these beds must come recommended by the family physician. For further information, address 3509 Franklin Avenue, St. Louis.

WE quote the following from one of the Chicago daily papers :

A jury verdict awarding \$12,500 damages to Gertrude Stricker against the West Chicago Street Railroad Company was returned before Judge Garver. The damages for injuries received by her in March, 1897. Miss Striker, then 17 years old, was struck by a trolley car as she was crossing the tracks at Harrison and Halsted streets to go to her home near by. The accident occurred about twenty feet from the crossing on Harrison street. As a result of her injuries she lost the sight of her left eye.

A HOSPITAL FOR CONTAGIOUS EYE DISEASES.—A bill has been introduced into the State legislature providing for the establishment by the City of New York of a hospital for the treatment of contagious eye diseases. The institution is to be located in the borough of Manhattan, north of Fifty-ninth street. The board of managers is to consist of Drs. John C. Lester, of Brooklyn, and John L. Adams, Peter A. Callan, and Thomas R. Pooley, of New York, together with three physicians to be named by the mayor. The health department of the city is to furnish all food, medicines and supplies.

THE eighteenth annual report of the Liverpool Eye and Ear Infirmary has been submitted. Seven hundred and fifty-three beds were occupied last year, as against 709 the previous year. Five hundred and eighty-two important operations were performed last year, as against 576 the previous year. The outdoor department reports 5,879 new eye cases and 2,010 new ear cases. The general attendance in the out department was 20,054 eye cases and 6,934 ear cases, and a debit balance was reported of £368; the hospital Saturday and Sunday fund contributed £504. They will be compelled, at least for the present, to consider the legacies and donations as an annual income instead of being used toward paying off the mortgage of £1,000. Mr. Hugh E. Jones was made an honorary surgeon.

WE hear from Southern California that our medical friends appear to be practicing medicine in the purely æsthetic manner, and they environ their offices with the most entrancing surroundings.

Instead of stuffy offices in high buildings, they occupy little gems of one-room cottages, miniature bungalows, in true East Indian style, some of them just canvas stretched over a light frame of wood, but with little porches and balconies opening from low windows. Just imagine one of

these wreathed with roses and honeysuckle, or the begonia hanging its trumpet-shaped blossoms of deep orange color in graceful festoons along the low eaves, with a doctor's sign, "Eye and Ear Specialist," on the portal. Who would mind being tortured in such a paradise? One noted specialist even serves five o'clock tea to his lady patients.

MARCH 23, 1900, the building of the old Western Union Company, northeast corner of Third and Olive Streets, St. Louis, Mo., was badly damaged by fire. In this building is located the publishing department of the *Annals of Ophthalmology* and *Annals of Otology, Rhinology and Laryngology*. The loss to publisher Parker, in stock and machinery, will exceed \$10,000, but partially covered by insurance. All of the back numbers of the *Annals* are practically destroyed; all of the cuts that have been used for illustration are gone, and the type and presses entirely ruined. He is not dismayed by this, and is already in business, and is now working upon the first number of the *Annals of Otology, Rhinology and Laryngology*, which will be gotten out shortly after the first of April. On account of the serious loss, the publication of No. II, 1900, of the *Annals of Ophthalmology*, which should appear about the last of April, will probably be delayed a couple of weeks.

OPHTHALMIC DISEASES AT JERUSALEM.—The annual report of the administration of the British Ophthalmic Hospital at Jerusalem (belonging to the Grand Priory of the Order of Hospitalers of St. John of Jerusalem in England) shows that the work of the last year, as compared with that of its predecessor, was almost stationary, mainly from the cause that it was as much as Dr. W. E. Cant alone could by any possibility accomplish. The applicants for admission were 1,182; the in-patients admitted, 598; the new out-patients, 4,481; the attendances on out-patients, 12,080; the operations, 1,330, and the administrations of anæsthetics, 683. Treatment at the hospital was, as in former years, greatly appreciated both by the inhabitants of Jerusalem and by the fellaheen of the surrounding country districts; and the Chapter of the Order of St. John has since the issue of the report sanctioned the appointment of an assistant surgeon to Dr. Cant, so that out-patients may be seen six days a week. We observe that of the 598 in-patients, 364 were admitted for trichiasis; and that of the 1,330 operations, 917 were Snellen's operation (extended) for trichiasis of upper lid. There were forty-three extractions of senile cataract. Among the 4,441 out-patients, 712 had superficial keratitis, 696 keratitis with trichiasis, 437 chronic organic conjunctivitis,

422 adherent leukoma with cicatrix, and 170 were cases of cataract. The work done at the hospital certainly seems to merit generous support.—*British Medical Journal.*

It has been a strange experience for Londoners to see the Queen with a pair of spectacles in front of her eyes. This new feature of a royal drive under escort of the Life Guards has impressed spectators with a sense of the burdens of her increasing years. As a matter of fact, her eyes have been failing for a long time, and she has been sensitive respecting this obvious infirmity of old age. The conscientiousness with which she has always discharged duties and business of state has rendered failure of sight a peculiarly trying affliction.

I am informed that she has made a point throughout her reign of reading the countless documents which she is called upon to sign, and has not been willing to receive information about them at second hand. As her sight has been impaired copyists and clerks in Parliament and the public offices have been required to accommodate themselves to new conditions, and to write and engross documents in a larger hand than formerly, so that she may be able to read them with greater facility. The Queen's secretaries and ladies of the household read the correspondence and newspapers to her, but she clings tenaciously to the habit of examining all state papers with her own eyes. This she is still enabled to do with painstaking care, inasmuch as the official script has been enlarged so that she can read it with the least possible inconvenience.

While the Queen's sight has been impaired, her other senses are remarkably acute. She is not in the least degree deaf, but follows conversation as readily as she has ever done. Her mental faculties are quickened and sharpened by advancing years. Her interest in public affairs, especially in the campaign in South Africa, is most intense.

THE annual meeting of the Bath Eye Infirmary was held February 16th. The in-patients during the past year have numbered 268, while 1,749 out-patients have been treated. The treasury showed a balance of £31. The meeting was presided over by *Alderman* Bartrum. They must do things differently in the mother country, or at least they must produce another variety of aldermen. Imagine Hinky Dink or Bathhouse John presiding over a meeting of an eye infirmary in Chicago. These distinguished gentlemen might, with great ability, preside at some meeting where "eye openers" were discussed, but at a gathering for scientific purposes—Gott bevar. We have, unfortunately, one or two

instances in our midst where politics have utterly ruined the reputation of hitherto commendable institutions, and where such institutions are used simply to pay off political debts, to the entire disregard of efficiency, but to the great respect of those possessed of sufficient political "pull." While we welcome the day in this country when aldermen and politics in general will be so purified as to emanate a beneficent atmosphere around them, we sincerely hope that our various hospitals and charitable institutions will be widely divorced from politics and politicians until that Utopian period, that seems just now so very far distant, when politics and personal integrity will not be diametrically opposed to each other. Meanwhile we congratulate the mother country on its enviable condition, where the lion and the lamb lie down together, as it were, without the mysterious disappearance of the lamb and the suspicious enlargement of the lion's belly.

EFFORTS are to be made to urge the Chicago Board of Education to begin on the building of the school for mental and manual training of the blind this spring. A resolution is now before the school management committee, asking for the privilege of making a collection among the school children for the building of a dormitory in connection with the school, as the pupils will not be able to go to and from their homes. This resolution will come before the school management committee.

Those who are anxious for the erection of the school, however, are willing to abandon the plan for a dormitory if they can only get the school. The city Council passed an appropriation of \$50,000 as far back as March 24, 1892, for such a school. The most the Board of Education did was to purchase a site, 115 x 166 feet, at West Nineteenth Street and Douglas Boulevard, costing \$6,000. The taxes since that time have eaten a little more into the fund, but there is still \$43,000 in the hands of the city treasurer.

The delay is attributed to various reasons. The main one is that there has always been a contention that the state should and does take care of the blind, and that the city of Chicago cannot enter into the same work for this reason. The state provides an institution for the education of the blind at Jacksonville. The blind children of Chicago, however, have many friends who are going to persuade the Board of Education to use the \$43,000 for the purpose for which it was appropriated.

THAT ophthalmology has not always been that proud and aristocratic science and art which it appears to us now, is evident from a lecture

delivered by Professor Schnabel, of the University of Vienna, a few months ago. This well-known ophthalmologist commenced his lecture with a retrospect of the development of his branch of medicine, to which he felt induced by the thought that the last term of study of this century had been inaugurated.' He said that the first and perhaps the most important step for the development of ophthalmology was in the establishment of eye-clinics. Vienna was the first university where an eye-clinic was founded. At the beginning of the seventies of the last century there was in whole Austria no surgeon who was capable of performing a cataract operation. The Empress Maria Theresa felt this want most deeply. When, therefore, about this time, the Parisian surgeon, Dr. Wenzel, came to Vienna to operate for cataract, the Empress asked him to instruct two surgeons of Vienna in his art. Wenzel, indeed, showed his operation to two surgeons there, but was reticent about the most important procedures. In consequence the surgeons operated with such bad results that soon after his departure they had to stop the practice. When, some years later, Wenzel again was called to Vienna, the Empress summoned him and reproached him bitterly for his treacherous behavior. She would allow him to operate only on condition that he instructed systematically Dr. Joseph Barth, the celebrated anatomist of Vienna. Wenzel first tried to deceive even him. But Barth soon perceived that, and to obtain the desired information he promised Wenzel to instruct his son in the anatomy of the eye in return. In this manner the Frenchman was finally induced to give up his whole art, and Austria obtained its first ophthalmic surgeon. After Beer then had been made professor of the newly established eye-clinic, ophthalmology soon developed at Vienna with such rapid strides that the Vienna University became recognized as the leading school in the field of ophthalmology, long before Skoda and Rokitansky made Vienna the Mecca of internal medicine. Professor Schnabel then gave the later development of ophthalmology, which was brought to full bloom by men like Arlt, Graefe, Helmholtz and Donders.

—*The Keystone.*

BLINDNESS IN FINLAND.—The different degrees to which blindness prevails among various populations is always a matter worthy of study. J. Widmark has investigated the subject as regards Denmark, Sweden, Norway and Finland (*Nordiskt Medicinskt Arkiv*, August; *New York Journal*, October 25th). He finds that for every 10,000 inhabitants there are 5.3 blind persons in Denmark, 8.3 in Sweden, 12.8 in Norway, and 15.5 in Finland. The preponderance in Finland, which is not observed

among children under ten years of age, is attributed to the great prevalence of trachoma. Curiously enough, the "endemic" affects only the natives.—*Sanitarian*.

AMONG the volunteer papers for the next meeting of the Ophthalmological Section of the American Medical Association not already mentioned are the following :

"The Use and Abuse of Iodid of Potash in Ophthalmic Practice," A. R. Baker, Cleveland.

"The Use of Heat as a Therapeutic Agent in Chronic Eye Affections," L. J. Lautenbach, Philadelphia.

"Factors which Influence the Movements of the Eyeball," Edward Jackson, Denver, Col.

"The Douche in the Treatment of Purulent Conjunctivitis, E. E. Holt, Portland, Me.

"The Ocular Complications of Injuries to the Head, with Report of Two Cases," J. T. Carpenter, Philadelphia.

"Observations on the Etiology of Scrofulous or Phlyctenular Keratitis and Its Treatment by Salicylate of Sodium," H. Gradle, Chicago.

The officers of the Section on Ophthalmology of the American Medical Association, of whom H. V. Würdemann, of Milwaukee, Wis., is Chairman, and C. E. Clark, of Columbus, Ohio, Secretary, submitted the following preliminary program of the section for publication. According to the desire of the section, and following the trend of the times, it has been deemed advisable to radically limit the number of original essays which may be read before the meeting; so many have been read in the past which, though painstaking and of literary value, are not of the character that should be inflicted upon the foremost gathering of American oculists. The time of the meeting can only be allowed for discussion of theories that are yet *sub judice*, unsettled subjects, new medicines, methods of treatment, or new theories substantiated by sufficient original research and laboratory work. An essay composed mainly of abstracts from antique or current literature, or use of subjects or methods well known, is more appropriately read before a local gathering of general physicians or a state medical society—that burial-place of long-winded essays—than before the most progressive ophthalmologists of America, brought together for the exchange of views on *fin de siècle* subjects. The officers desire to state that there is yet a place for a few more volunteer papers, which are particularly desired from the younger element of our profession.

THE OPHTHALMIC RECORD

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NO. 5. NEW SERIES.

ORIGINAL ARTICLES.

SPONTANEOUS LUXATION OF THE LENS, AND ZONULAR CATARACT.

BY M. F. WEYMANN, M.D.

Prof. of Ophthalmology and Otology, Central Med. Col., St. Joseph, Mo.

In July, 1899, I was consulted by Mr. L., of Craig, Mo., for eye trouble. Patient was a farmer, apparently in perfect health, but of frail, diminutive stature; mentally active and alert, but exhibiting tubercular tendencies by a dorsal Potts' curvature and a husky voice. History of bad sight in many members of his family, his father having lost a highly amblyopic eye with a violent attack of neuralgia (supra-orbital), after which the "ball broke and ran out."

Patient's sight:

O. S. V. = counting fingers at 4 ft., with a + 10 Dsph. = $\frac{20}{200}$.

O. D. V. = simple perception of light, not improved by lenses.

Inspection shows *iris tremulans* on both sides, outside of which left eye seems normal. In the right eye there is seen a beautiful bi-convex body of a distinctly greenish hue. Focal light reveals the convexities unequal, the greater curvature being turned *forward* and resting against the posterior surface of the cornea. Its rim (equator) above passes a little higher than the pupillary opening, which latter is rather narrow for the marked amblyopia. The cornea shows a patch of a striated milky haze, such as one observes in the "zone of progress" of

an infective ulcer, and due, probably, to the irritating contact of the foreign body. The severity of the pressure is evidenced by a slight, yet distinct, disturbance in the circle-reflection of a Placido disc.

Bringing the patient's head below the horizontal does not cause the foreign body to gravitate, but repeated pushing of the ball by means of the lower lid brings it nearer the center. In the upright posture, however, it again gravitates downward, and even during recumbency a few excursions of the lid cause it to seek its original resting place. Continued search shows the condition of the iris to be the cause. The latter membrane seems pulled backward by the sphincter, whereby it assumes the shape of a "truncated" bell (apparence bombée), but while the upper portion recedes when the foreign body is pushed upward, the lower does not come forward, though relieved from pressure. The color of the iris is a muddy blue, but the depressed portion underneath the foreign body is greenish, whence the smaragdine reflection through the dislocated lens. The presence of iritis was indicated also by severe supra-orbital neuralgia, causing patient to seek advice, and by the characteristic pericorneal halo-blush, most marked inferiorly. Lachrymation and photophobia insignificant; tone quite soft.

Diagnosis: Spontaneous luxation of the lens into the anterior chamber.

The lens was quite large and intact in its capsule, little shreddy filaments radiating from the equator (ruptured zonula Zinnii); nucleus and cortex were clear, but the intermediate substance showed marked clouding for about one-third of its circumference, which opacity, however, gradually thinned down until, directly opposite, very little haze could be detected. The part with the heaviest cloud always settled below, perhaps on account of the increased thickness due to the swelling having made a special resting place for it.

The patient claimed to have had several spells of sudden blindness, which, however, would disappear after a few moments. This, together with the softness of tone, indicated to me dangerous liquefaction of the vitreous. Extraction was, no doubt, the ideal treatment, but the other eye was practically unserviceable, and as the man had lived nearly thirty years without prolapse or irritation, I decided rather to replace the lens than to run any risk of losing the eye.

Atropia was instilled, both for the purpose of allaying the iritic irritation and enlarging the pupillary circle for possible spontaneous reduction. After twenty-four hours without a sign of dilatation, I prepared for extraction, or for forcible reposition in case of failure to deliver the lens with safety.

Eserine and pilocarpine produced some myosis, which tended not only to hold the lens better, but also to dam back the vitreous.

The effort at extraction was made with the most careful touch and a knife with a perfect edge and point, but when the flap was nearly severed the escape of a few drops of aqueous was followed by a sort of leaping bulge over the corresponding iris portion. This induced me to withdraw my knife, leaving the flap bridge uncut. The lens was now nearly over the center of the pupil, and subjected to direct pressure through the cornea. It was easily replaced by tilting it with a horn spatula, which, at the same time, drained off all the aqueous humor.

The wound healed kindly and all reaction ceased, including all corneal infiltration, but the bell-shaped iris-inversion, most marked below, continued.

Ten days after the operation :

O. D. V. = $\frac{20}{30}$ with + 10 Dsph.

In this connection I would say that I have seen quite a number of zonular cataracts, and in the last seven years I have discarded the classic advice of non-interference and iridectomy, as both are unsatisfactory. Such eyes are not usually amblyopic *per se*, and if an artificial excentric pupil does benefit some, how much better would they see through a central path for light! In many instances a high degree of myopia masks true conditions, but that can be corrected. The assertion that zonular cataracts are non-progressive is thoroughly wrong. It is true that few of them eventuate in a *full* and *complete* cataract, but most all go to maturity. In early childhood the zone is usually a thin, fog-like cloud, while in after life the cataractous opacity is as mature and impenetrable as the typical senile form.

If the poor sight is due to great amblyopia, an operation may not avail much, but the instillation of atropia will promptly rule out the few cases of this kind. If pupillary dilatation improves vision, then remove the lens.

BY EXTRACTION OR DISCISSION?

Considering the soft tone of such eyes, the liquefaction of the vitreous and the clinging immature cortex, I prefer discission, which operation I consider entirely safe if we avoid (a) infection, (b) glaucomatous complications (c) iritic trouble.

Acute increase in tension is possible only by stirring the lens up too violently, so that the whole mass swells up at once. I finish the work in several attempts, the first of which consists of two deep gashes through capsule and lens by means of a very narrow cataract knife, while at a later

date I employ the needle. The patient spends his time at home instilling atropia to keep pupil at maximum.

As for the age limit, I have performed discission with excellent results at thirty-five and forty; still the majority of such patients, from the nature of things, seek aid before thirty. The iris being often found stiff and rigid, consequently sluggish to dilate, *no discission should be undertaken, unless satisfactory mydriasis is obtained before the operation, and no patient should be allowed to leave unless his pupil is "up" properly.*

Barring trauma, I have never seen luxation of the lens except in connection with zonular cataract, the lens then being tilted or subluxated around the vertical axis. In one patient the iris had the characteristic tremble over the depressed nasal half, while two others, similarly subluxated, showed none. The results were all very satisfactory. The lady with the iris tremulus, whose right eye I operated on, obtained $\frac{20}{30}$. She also told me that among her immediate relationship there were at least six who had been operated upon for the "same" trouble (cataract with poor sight from childhood), and only one, an uncle, had barely sight enough to "get around."

My observations and experience with zonular cataracts lead me to join to the case reported the following conclusions:

1. In the vast majority of cases spontaneous lenticular dislocation is due to the same causes that produce zonular cataract.

2. Zonular cataractous degeneration is only one of the ensemble of these congenital defects (myopia, weakness of the zonula of Zinn, liquefaction of the vitreous, a certain degree of iridal rigidity, amblyopia).

3. All, or most, of these defects may be present while the lenticular cloud may be wanting.

4. A spontaneously luxated lens, surrounded by its capsule, does not of necessity, nor usually, develop a cloudy zone.

5. If a cloud is found (zonular), it should not be attributed to the fact of dislocation, for a lens disturbed in its trophic relations degenerates in two ways only: (a) locally, at point of capsular injury or irritation, (b) totally.

The fact that clouding after dislocation of the lens-capsule is not a whit faster than in normal relations, is proven by reports showing such crystallines to have retained perfect transparency for many years (Riordon, eight years; Jaeger, thirty years).

6. Luxation into the anterior chamber should be attended to at once, as it is apt to cause pressure-necrosis of the cornea, and iritis.

DeWecker (Tome 2, p. 824) cites de Graefe's case of a dissection on a lens traumatically luxated into the anterior chamber: "L'opération fut suivie, plusieurs jours après, d'une ulcération de la cornée par laquelle le cristallin fut expulsé." Of course, the operation seems ill-advised in such a location, owing to its interference also with the filtering circle and the consequent danger of glaucoma; still, if the lens, after having been gently stirred up, could have been dropped into the vitreous, there should have followed, with full mydriasis, no bad results. I shrunk from so doing in the case quoted, because the iris was fast. In *traumatic* dislocation into the anterior chamber we should extract the lens.

7. Though extraction is the ideal proceeding, I think it should be abandoned in favor of reduction into the vitreous in the presence of the following conditions: (a) When the other eye is practically unserviceable and extraction unduly risky; (b) when the lens has, without irritation, resided back of the pupil before.

8. With a loose iris I believe dissection the best and safest plan.

FOREIGN BODY—PIECE OF GUNLOCK IMBEDDED IN FRONTAL SINUS FOR SIX AND A HALF YEARS—REMOVAL.

H. BERT ELLIS, M.D.

LOS ANGELES, CAL.

Illustrated.

On July 31, 1899, C. T. C., a miner, aged 49, weighing about 210 pounds, presented himself to me to be relieved of a sero-purulent discharge from a sinus situated slightly below the nasal end of the left brow. There had been a constant discharge since March 15, 1899. By inquiry I obtained the following history:

On January 19, 1893, while doing some range practice his 40-90 rifle burst, and he was struck on the forehead by a piece of the gun and somewhat stunned. Within half an hour, however, he presented himself to the local surgeon, who discovered a wound three-quarters of an inch long running from just above the inner canthus upwards and slightly outwards through the brow. The surgeon put in two or three stitches, breaking two or three needles in doing so, but as he did not probe the wound it healed without suppuration in a few days. For a week the swelling was considerable. After the swelling went down a slightly elevated place was

discovered just above the inner canthus, which had the feeling of rubbing the skin over a roughened surface, but as the wound had healed it was thought best not to disturb it.

The accident occurred at a small town in Arizona, some 250 miles from Los Angeles, and it was not until the May following that he came to the metropolis of Southern California, at which time he consulted an oculist, the late Dr. Darling, on account of pain in the left eye. The doctor told him that there was a small chip of bone there that would probably give him some trouble in time, but as he had only a slight pain he did not think it necessary to disturb the wound then. From the healing of the wound in January, 1893, till March 15, 1899, there was never any manifestation of the existence of a foreign body in this vicinity further than the almost constant presence of some pain in the left eye and the utter impossibility of using both eyes together. This latter symptom, however, had been but little trouble to him, as he had soon learned to use the right eye exclusively.

On examining the patient I found a slight elevation of the skin just above the inner canthus of the left eye, and at about the junction of the frontal, nasal, and superior maxillary bones. On feeling of this elevation one had the sensation of rubbing over the rough end of a broken bone. On passing the silver probe into the sinus I found it about one-half an inch deep, and running direct to the swelling. I could feel the probe point passing over an uneven surface, but it was as though there were tissue lying between the probe and the rough object. My diagnosis was necrosed bone surrounded by granulation tissue. The next day, August 1, 1899, I operated for its removal. My first incision was from the opening of the sinus to the bridge of the nose along the sinus track, which took the wound through the swelling, and made an angle of 120 degrees with the cicatrix. While carefully getting the tissue away from the supposed necrosed bone my instrument struck metal, much to my surprise and the chagrin of my diagnostic pride. My patient, being a large, well-nourished man, of full habit, hemorrhage was so free that it was quite impossible to get a good view of the deeper parts. After getting the soft tissues away from the foreign body I attempted to remove it with bone forceps, but no matter in which direction I made traction there was not more than 3 mm. play. A more careful examination revealed the fact that there was only an oval projection of steel, 8 mm. by 6 mm., extending out from the closely enveloping bone about 5 mm., so I was obliged to chisel off a small piece of the supraorbital ridge, and then I had to use some force to remove the firmly imbedded steel, which was in



a splendid condition of preservation, showing no evidence whatever of rust. I washed out the frontal sinus, and scraped away some granulation tissue from the passageway leading from the frontal sinus to the nose, put a stitch in either extremity of the wound, and packed it with borated gauze. This dressing was changed daily, the wound being allowed to heal from the bottom. In thirty days the wound had completely closed, leaving depression at the point of old sinus. At the time of operation I succeeded in giving drainage to the frontal sinus through the nose, but was fearful, on account of the previous suppuration, of attempting to gain union of the wound by first intention.

On the 25th of August the ophthalmometer gave:

$$\begin{aligned} &\pm 0.50 \text{ Cy. } 0^\circ - 90^\circ \\ &\pm 2.25 \text{ Cy. } 0^\circ - 90^\circ. \end{aligned}$$

He had 5° esophoria and 20° hyperphoria, base down left, with vision of

$$\begin{aligned} 6/7.5 \text{ by } +0.37 \text{ Cy. } 90^\circ &= 6/5. \\ 6/12 \text{ by } +0.50 \text{ Sp.} + 1 \text{ Cy. } 90^\circ &= 6/6. \end{aligned}$$

reading added:

$$\begin{aligned} &+ 1.75 \text{ Sp.} \\ &+ 1.75 \text{ Sp.} \end{aligned}$$

At first reading was difficult on account of the use made of the left eye, which had long been on a strike. On the 19th of January of this year, the seventh anniversary of the accident, the esophoria was only 4° and the hyperphoria 17° , and he was beginning to use the eyes together for short periods of time and at close range without the aid of prisms.

The accompanying photographs show the man and his wound as it existed on the 19th of January, 1900, as well as the piece of gunlock, which was 29 mm. in its longest diameter, 17 mm. at its broadest point, and 11 mm. broad through the greater portion of its length, and $7\frac{1}{2}$ mm. thick; and its weight was 190 grains. Its actual size in relation to a fifty-cent piece is illustrated by the photograph.

FIBERS FROM THE LAMINA CRIBROSA EXTENDING OUT FROM THE OPTIC DISC OVER THE RETINA.

BY FRANK C. TODD, M.D.

Professor of Clinical Ophthalmology and Otology, University of Minnesota, Minneapolis.
Illustrated.

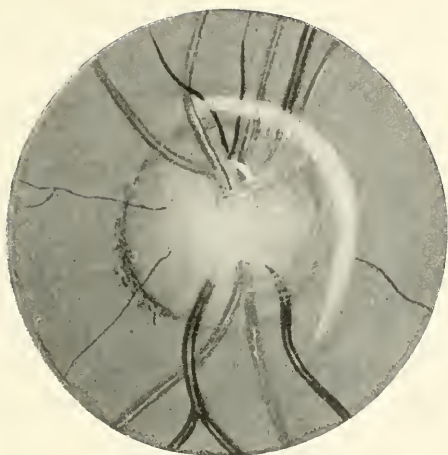
The accompanying picture was made to illustrate the fundus of an eye of a young man about 21 years old, who sought advice on account of some symptoms caused by a slight error of refraction. His vision when the error was corrected was $\frac{20}{15}$ in each eye. No lesion existed in either eye, both were found, in fact, to be absolutely normal aside from the condition which is here described.

Coming out from the head of the optic nerve (in one eye only) are numerous white fibers, which curve out to form a more dense band of the same fibers, so dense in certain places that the vessels of the retina are completely hidden from view, while in other places where the fibers are less dense they can be seen as through a veil.

It is easier to tell what this condition is not than to say what it is. At first sight I thought it a posterior staphyloma, but another look showed that there was a complete ring of choroid all around the disc, and that it was not due to any defect in the choroid, which structure was intact. It is not a rupture of the choroid showing the sclera through the torn tissues, for the fibers are distinctly seen. They cover the retinal vessels, and come from the nerve-head, and dip into the retina and choroid at each end of the semicircle. They cannot be opaque nerve fibers, for nerve fibers radiate from the disc in every direction, and do not circulate around the disc; neither do they come out from the nerve as do the vessels and the nerve fibers of the retina, but they cross the head of the nerve and come out of the nerve-head transversely. They are not cicatricial bands, which are found in diseases of the choroid. The choroid and retina are perfectly normal.

It seems to me that the fibers come from the lamina cribrosa, pass out over the retina, and dip down at each end into the retina and choroid, passing through these membranes to be attached to the sclerotic coat. If so, they are, like the fibers of the lamina cribrosa, scleral fibers, which formed in this location during the development of these parts. The condition is evidently not pathological, but a freak of nature.

The illustration was made by Mrs. Amelia Center.



HYSTERICAL BLINDNESS, WITH REPORT OF CASE.

BY GEORGE S. McREYNOLDS, M.D.

BALTIMORE, MD.

The following case came under my observation during my term at Baltimore City Hospital, and later at the Presbyterian Eye, Ear and Throat Charity Hospital of Baltimore:

J. D., age 35 years, American, widower, occupation marine engineer.

Family History—Mother died of cancer of stomach. Father died with pneumonia. Twin brother alive and in good health. Has three children, all in good health.

Previous History—Had gonorrhea fifteen years ago; claims to have had no sore on penis, but did have double suppurative bubo at time of gonorrhea. Has not had any skin eruption at any time. Is of neurotic temperament, which was aggravated a few years ago by some domestic troubles. About three years ago, after being exposed to sudden changes of temperature, had severe headaches. These headaches persisted for about six months, when he was under treatment in one of the hospitals of this city, and thinks he was given pot. iodide, gr. xxx, t. i. d. Five weeks of this treatment entirely relieved him of his headaches, when he discontinued all treatment.

About February, 1898, headaches recurred, when he returned to same hospital, and was again put on pot. iod., with mercurial inunctions added. At expiration of six weeks headaches were again relieved.

August, 1898. Headaches returned again.

August 16, 1898, was admitted to City Hospital about 3 p.m. General physical examination and examination of urine negative, but he was complaining of severe headaches. He was put to bed and he went to sleep. He awoke at 6 p.m., and found that he was totally blind in both eyes, not even having light perception; pupils reacted to light, but left a little sluggish. He was ophthalmoscoped about 9 p.m. by Dr. H. Friedenwald and myself, but nothing could be found more than slight congestion of fundus, which was slightly woolly, all of which was easily within the bounds of normal, same condition being found in both eyes. He was given pot. iod., gr. xxx, t. i. d., and purged freely August 20th. Can now see a little at dusk. Headaches still very severe.

August 21st, slightly improved, but still can't see in daytime.

August 22d, can now see a little in daytime.

August 23d, vision very much improved.

August 30th, vision normal, no headaches, and patient left hospital with instructions to keep up k. i.

February 25, 1899, patient returned to City Hospital, and says he kept up pot. iod. about three weeks. Since February 1, 1899, has had headaches, which have increased in severity. On morning of admission, February 25th, left eye became totally blind. Right eye vision unimpaired. Had very severe headaches, and was again given k. i.

February 26th, Dr. A. Friedenwald and myself ophthalmoscoped patient, and found same condition as noted August 16, 1898. Left eye still blind. Right eye only counts fingers at two feet.

February 27th, vision right eye much improved; left eye still blind.

February 28th, vision of right eye good; left eye begins to see light.

March 1st, vision right eye about normal; left eye counts fingers at six feet.

March 2d, has reading vision in each eye; no headaches.

March 6th, discharged in good condition.

May 4, 1899, patient again appeared on the scene, complaining of headaches for several days, and has some failing vision of left eye, 20/40; right eye, 20/20. He then had placed before left eye a + 1 D. sph. and a — 1. D. sph., which gave him vision of 20/20.

January 10, 1900. Patient called to see me to-day, and reports that during September, 1899, while at Tampa, Fla., he had an attack, his left eye becoming intensely blind, and right eye very much impaired. He was again given k. i. The absolute blindness of left eye lasted five days, when it improved rapidly, entirely recovering in two weeks, the right having also recovered in the meantime.

I went over his vision to-day, and find it to be 20/20 in each eye when all errors of refraction are corrected. He was also ophthalmoscoped to-day, and condition found to be the same as on previous occasions, when he did not have light perception. He is complaining of some headache now, but left the city for another voyage.

January 12th, patient came to me again, stating that when he got to Norfolk, Va., his eyes began to fail again, so he gave up his position, which was paying him \$3.00 per day, all on account of his eyes. Right eye vision, 20/20. Left eye counts fingers at three feet. Field of right eye almost exact counterpart of normal in shape, but was contracted to 18° and less. Field of left eye contracted to about 8° and less. Fundus

in each eye shows same appearance it did two days previous, when vision was about normal. Pupils active.

Patient was taken into Presbyterian Eye, Ear and Throat Hospital, and was given syrup iodide of iron, gtts x, t. i. d. This was used, as it came nearer the taste of pot. iod., which he had taken on previous occasions, and we wished to be sure that his previous rapid recoveries were not due to pot. iod.

January 13th, right eye failing; left eye can not even see light.

January 15th, thinks right eye has improved; left eye cannot see objects.

This afternoon, with Dr. H. Harlow, we tried him by placing a red glass in front of right eye and nothing in front of left eye, and he read the letters of the complementary color to red. We then placed before right eye a + 13 D. S. and nothing before left, and he read 15/30 notwithstanding he had just five minutes before stated positively that he could not see objects with left eye. He was then shown that he was reading with his left eye, which he had supposed was blind. He was very much surprised and delighted. He left hospital next day, but still complaining of headaches. The first two attacks in which I saw this patient I thought probably it might be due to intercranial pressure, most probably of gummatous nature, and this was borne out to a certain extent by the magic manner in which all symptoms cleared up under pot. iodide. But the last attack absolutely explodes the pressure theory, and brings us down to hysteria or malingering. As far as the patient is concerned, it was as genuine a case of blindness as I have ever seen. During his first attack he had a regular optic atrophy stare, and it was truly pitiful to see the poor fellow led around, not seeing a particle. And when he began to regain his vision, he asked me to please let his children come at dusk, that he might see them once more, that being the only time of day that he could see.

Also his last attack, when he, a poor man, gave up a position of three dollars per day and came over a hundred miles to have his eyes attended to, and nothing else, does not look much like malingering. All of the oculists who have seen the case with me agree as to the diagnosis.

I do think that the patient's headaches are genuine, and that they have acted as a suggestion to bring on visual suppression.

During the last year I have seen quite a number of cases of hysterical amblyopia, but this is the only one in which there was a temporary loss of vision in both eyes at the same time. As cases of such severity are very rare, I felt that it was worth reporting.

UNUSUAL COMPLICATIONS OCCURRING AFTER AN OPERATION FOR ORBITAL LIPOMA.

BY H. V. WÜRDEMAN, M.D.

Ophthalmic and Aural Surgeon to the Milwaukee Children's Hospital and to the Milwaukee County Hospital for the Chronic Insane; Managing Editor *Annals of Ophthalmology*, Associate Editor *Ophthalmic Record*, Chairman Section on Ophthalmology, American Medical Association, 1900.

MILWAUKEE.

The following case history is cited on account of the unusual complications following an operation for removal of a fatty tumor in the orbit:

Mrs. J. W., aet. 39, American; has seven brothers and one sister; one brother had a small tumor about size of a hickory-nut back of the left ear, which was removed and did not recur. Patient has had three children; one died at 2 months; cause of death said to be "enlargement of the liver."

Patient came for consultation February 14, 1899, with the following history: Three years previously she had a small tumor removed from the outer canthus of left eyelids, which had existed thirteen years, slowly growing until time of operation; diagnosis of its nature is not known. The tumor had recurred and grown to its original size within two years, and during the last year had become larger. On examination a movable growth of the size of a small walnut was found at the outer canthus of the left eye, apparently arising in the orbital tissue. There was paralytic strabismus with diplopia, due to non-action of the left external rectus. The vision of both eyes was 6/xii, the fundus normal. The following correction was ordered for constant use: R. +2.00 \bigcirc +.50, 75°, V.=6/vi; L. +2.50 \bigcirc +.37, 165°, V.=6/vi. Removal of the growth was advised.

Operation March 14, 1899, under ether anesthesia. The tumor was removed, and found to be much more extensive than anticipated. The incision was made as for canthotomy, and then carried between the bulb and lid sufficiently for exposure of the growth; a very careful dissection was made, entirely by the forceps and grooved director, and I am sure that no mechanical injury was inflicted upon any of the muscles or the trunks of the motor oculi or optic nerves by the instruments; the bleeding was minimal. The external rectus was atrophic, owing to injury from

the former operation. The growth apparently did not involve the periosteum or the muscular sheaths, being entirely outside of the muscular cone. There was nothing unusual about the operation; it was done with the usual asepsis and antisepsis, the wound stitched and an occlusive bandage applied. Examination of the specimen showed a lobulated tumor of the size of an English walnut, composed of fat, inclosed in a rather friable fibrous capsule, the microscope showing it to be composed of fat and fibrous tissue, a typical lipoma.

On the next day the patient complained somewhat of the pressure from the bandage and some pain, but as it was not blood-stained and was in position the bandage was not removed until the usual time for dressing had elapsed, forty-eight hours after the operation, when a considerable hematoma was seen in the tumor site and complete ptosis was observed; healing, however, was by first intention. On the third day after the operation the eyeball seemed absolutely immovable, and has remained so to this date. The visual acuity was the same as before, although the ophthalmoscope showed the fundus to be congested and double vision could be elicited in all directions. The hematoma became absorbed in the course of a week, being aided by hot applications. The visual acuity gradually lessened, six weeks after the operation being $5/xxv$; the visual field became contracted, the optic nerve whitish, and the retinal vessels carried less blood. Iodid of potassium in increasing doses, and strychnin at intervals, were given for a couple of months. Faradism was used several times a week, from August 1st to the end of the year, with practically no result except to stimulate the fibers of the obicularis so that by a conscious effort the eyelid could be partially raised.

January 1, 1900, there is total paralysis of all the extrinsic muscles of the eyeball and the levator of the lid, causing absolute fixation in the median line, slight enophthalmus and pronounced ptosis. The pupillary reaction to light and accommodation is normal. The left optic nerve is paler than the other, although the retinal circulation is similar. The vision has slowly improved, being $5/x$, practically the same as before the operation. The visual field is decidedly contracted, the upper portion being reduced by the ptosis. Double vision of any character, depending upon the position of the head, may be elicited, but as the pupil is usually covered by the fallen lid this does not annoy the patient. There has been no recurrence of the orbital tumor. Treatment has been practically discontinued, the patient having accepted the position gracefully and, for a wonder, not blaming the surgeon for the cosmetic defect, as she is well satisfied that the tumor has not recurred.

In this case there is total traumatic ophthalmoplegia externa, with partial atrophy of the optic nerve, due to pressure of the hematoma of the orbit following the operation for removal of the orbital lipoma.

128 Wisconsin Street.

A SIMPLIFIED METHOD OF TESTING WITH TRIAL PRISMS.*

BY FREDERICK HERMAN VERHOEFF, PH. B., M.D.

Assistant Surgeon to the Baltimore Eye, Ear and Throat Charity Hospital; Externe, Johns Hopkins Hospital and Dispensary.

Illustrated.

During the past few months I have adopted a method of using the ordinary trial prisms in testing for muscular errors that I think offers distinct advantages. As everyone is aware, it is ordinarily somewhat tedious to make the diplopia test or the Maddox rod test by means of the trial prisms, because so many trials must be made in order to arrive at the desired result, and it is for this reason that the Risley prism and the various phorometers are so advantageous. These instruments, however, are expensive, and many, for this and other reasons, do not care to use them. To such the method I am about to describe should prove especially useful.

The principle of the method is by no means new, it having been applied to several expensive phorometers, but I do not think it has been adapted to the ordinary trial prisms. The method consists in graduating the trial prisms and then using them as revolving prisms. I find it best to graduate a six-degree and a three-degree prism. The graduations are marked out by placing the prism upon a diagram, which I shall describe, and then marking its periphery by means of a diamond or a cheap glass-cutter. This in no way harms the prism, and it still may be used in the ordinary way.

Higher prisms may be graduated, but they are not so accurate for the lower numbers, because the graduations are too close together. In using graduated prisms of high degrees, too, there is apt to be an error in making the Maddox rod test, due to any slight deviation of the axis of the latter from the vertical or horizontal, as the case may be.

In making the Maddox rod test the prism is best placed in front of the rods. When the prism is revolved, the resulting motion appears to

*Read before the Maryland Ophthalmological and Otolological Society, March 22, 1900.

be at right angles to the streak of light. In the case of the diplopia test, the revolving trial prism produces exactly the same effect as would one of the prisms in a Stevens' phorometer. When the six-degree prism is found to be of insufficient strength, all that is necessary is to place an additional prism before one of the eyes. The three-degree prism is to be used in testing for low grades of hyperphoria.

In testing for lateriphoria, the amount is read off by counting the number of graduations between the ninety-degree mark on the trial frame and the apex of the prism, and in testing for hyperphoria, the graduations between the apex and the 180-degree mark are counted. The prisms may be manipulated in any trial frame, but one of the frames provided with revolving cells will be found the most satisfactory.

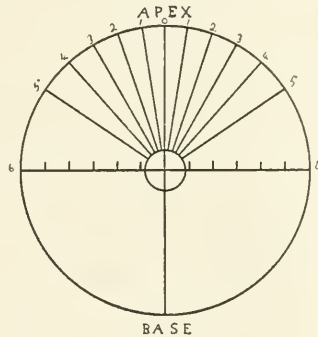


FIG. 1.

The diagram, Fig. 1, to be used in graduating the prisms, is prepared as follows: A horizontal line is divided into twelve equal parts, and then, with the line as a diameter and its middle point as a center, a circle is described. Perpendiculars are then drawn from the points of division of the horizontal line, and from the intersections of these perpendiculars with the circumference of the circle radii are drawn to the center of the latter. These radii indicate the divisions to be marked out upon a six-degree prism so as to divide its equivalent power into degrees. In the cut the perpendiculars have been omitted, but their positions are indicated upon the horizontal line. Theoretically, instead of the horizontal line being divided into equal parts, each half of it should be divided into parts proportional to the tangents of the equivalents in actual degrees of the prism-degrees from one to six inclusive, but this is, for all practical purposes, unnecessary. It is hardly necessary to state that in the case of the three-degree prism the divisions correspond to intervals of one-half degree.

CORRESPONDENCE.

SNOW-BLINDNESS.

TO THE EDITORS OF THE OPHTHALMIC RECORD:

DEAR SIRs: A letter received recently from Swan M. Burnett, M.D., of Washington, D. C., calls my attention to the fact that the Norris and Oliver "System of Diseases of the Eye" *does* contain some reference to the subject of snow-blindness. This subject is not included in the index, hence the cause of my failure to find it.

The reference to snow-blindness is made in the article on "Diseases of the Conjunctiva and Sclera," by Swan M. Burnett, M.D., Ph.D., and appears on page 248 under the head of "Conjunctivitis from Intense Light." It reads as follows: "Exposure of the eyes to an intensely strong electric light (Terrier) sometimes give rise to a form of conjunctivitis distinguished by swelling of the lids, hyperæmia of the conjunctiva and lachrymation, and attended with a good deal of pain. A large part of the painful symptoms accompanying *snow-blindness* is referable to hyperæmia of the conjunctiva, and is due to the effect of the reflected heat of the sun on the exposed conjunctiva, making it a true *sunburn* of that membrane.

The fine particles of snow driven into the conjunctiva also help towards this irritation. The phenomena are not due, as was at one time supposed, wholly to the effect of strong light on the retina. The prophylactic treatment consists in the wearing of protective spectacles of blue or gray glass. Painting the skin underneath the eyes with a black pigment of some kind is also highly commended as a protection against the evil effects of reflection of sunlight from snow.

S. MITCHELL, M. D.

HORNELLVILLE, N. Y.

REVIEW.

MYOPIA OPERATIONS (PHAKOLYSIS).*

The original article includes the literature of the subject to the end of May, 1899—more than 120 essays. The author only recommends the operation for patients who are practically unable to earn a living on account of their short-sightedness. He shows the difference between real and “glass” myopia. The first is readily distinguished by direct examination with the ophthalmoscope, by skiascopy, and also by direct measurement of the far point, the latter of which is most exact, and the best method for those who have not had great experience. For determination of the necessity for the operation he recommends measurement of the far point with ordinary reading type; or, as this gives rise to an element of error in some patients who hold the letters closer than their far point on account of diminished visual acuity, he recommends the “dot tests” of Burchard.

For the determination of glass myopia the weakest concave lens is used which gives the clearest vision in the distance. The distance of this glass from the eye is of considerable importance in determining the grade of the myopia. For instance, in an exactly determined myopia of 20.0 D. (far point 5 cm.), if the lens be 1.5 cm. away from the eye, it necessitates a lens of 28.5 D. to correct it. With every millimeter which we reduce the distance of the correcting lens away from the eye, the strength of the correcting glass is weaker. He drops a 2 per cent solution of cocain in the patient's eye, and brings the glass up against the cornea, or not more than 2 mm. away; a myopia of 20.0 D. above described is corrected by a lens 20.5 D. Thus he arrives closely at the exact amount of the myopia. These points should be reckoned in order to understand why one author finds that a myopia of 22.0 D. after operation results in emmetropia and another that 16.0 D. gives emmetropia.

The best results are obtained in a patient who becomes emmetropic after phakolysis, as he sees without any glass in the distance, and needs

*The Operative Treatment of High Myopia, by Professor Dr. P. Silex, of Berlin. (*Therap. Monatsh.*, Nov., 1899.) Translated and condensed from the *Wochensch. f. Therap. u. Hyg. d. Auges*, Feb., 1900.

but a weak concave lens of 4.0 D. for work. The optical condition of the patient should be estimated before operation. In a cataract patient who was previously emmetropic we give as a rule 10.0 or 11.0 D. convex for distance. The optical value of the removed lens is, however, not 11.0 D. but higher, as we place the cataract glasses about 15 mm. in front of the eye. The real myopia is always less than that shown by the correcting glass. For a long time the analogue was drawn from the results of cataract operation whereby a myopia of 13.0 D. should result in emmetropia after removal of the lens. It was likewise supposed that the myopic lens had a higher refractive value, but the above suppositions are false, as has been shown by Schoen, Hirschberg and others. The lens is of the same optical value in emmetropia and ametropia.

In order to determine the amount of myopia after operation the following rule is given :

Subtract $\frac{1}{2}$ of the value of the correcting glass placed at 15 mm. in front of the eyes from 11.0 D.: $11 - \frac{22}{2} = 0$, which is emmetropia, in a case where the refraction was corrected by 22.0 D. at 15 mm. Thus myopia 20.0 D. becomes 1.0 D., hyperopia and myopia 20.0 D. becomes myopia 2.0 D. If in the case of glass myopia of 22.0 D., with the lens at 15 mm. in front of the cornea, it be used at 3 mm., then the myopia is reduced to 17.0 D. Considerable astigmatism of course renders such reckonings unreliable.

Supposing the patient has a real myopia of 16.0 or 17.0 D. or more, the following conditions are to be observed :

1. If the patient has one good eye, for instance, an emmetropic one, the author does not recommend operation.
2. If one eye has been lost in any manner, the operation should only be done on the other after great importunity by the patient.
3. Recent inflammatory diseases of the choroid, or hemorrhages into it or the retina, irritative symptoms taking the form of glistening, lightning, etc., are contra-indications. Others have operated in such cases, and occasionally had luck, but such symptoms are often the forerunners of retinal detachment, especially when attended by vitreous opacities. As one cannot foretell this, it is better to wait a couple of months until the eye is quiet. Some persons have operated immediately in such cases, having perhaps very fine immediate results, but two or three months afterward retinal detachment occurred, and the patient will always say that the loss of sight was due to the operation; the surgeon is blamed throughout the life of the patient, and odium falls upon the operation.
4. The patient must feel himself practically helpless, and that glasses

were not of much use, that he must have relief and must beg for the operation.

5. The social standing should be considered in determining the necessity for better sight.

6. The age of the patient is of no consequence. The oldest case of the author's was 56 years.

In order to render the danger of infection least, the safest method should be chosen. In the case of children of twelve and fourteen years, after atropinizing, the lens may be discided and the case left to nature. It is occasionally necessary to do two or three discissions afterward. The course of the case is about the same as that of lamellar cataract, which we treat as out patients in the same way, and of which we are not afraid. In the course of three or four months the pupil is black and round, and we have an elegant result. If necessary to produce a quicker effect, the lens may be freely discided, and after a few days removed through a corneal incision. If it has not quickly become opaque, a second discission may be done a couple of days before the extraction. It is not necessary to remove all remaining particles of the lens. Prolapse of the vitreous readily occurs from unnecessary manipulation, and is a very dubious complication for the safety of the short-sighted eye. If secondary cataract develop later, it may be discided after a couple of weeks.

In the case of adults of forty years or more, he has done simple extraction without previous iridectomy or discission, but in all these cases secondary cataract followed. Sattler has recommended this procedure in young persons. The author has tried it in lamellar cataract, but has returned to the old method, which is simpler, and when all is considered, is much quicker.

For phakolysis, he keeps middle-aged patients in the hospital from fourteen to sixteen days, making the discission on the first day, from four to six days later doing linear extraction, letting them go about ten days afterward. For about a week later it is necessary to watch for development of secondary cataract, the treatment of which takes five or six days after the eye is quiet. The complications are prolapse of the iris, iritis, loss of vitreous, and increase of tension; with the latter he has had no experience. These are to be handled according to established rules. After one eye is done with, it is recommended to attend to the other in order to give the patient the advantages of binocular vision.

H. V. WÜRDEMANN.

REPORTS OF SOCIETIES.

SAN FRANCISCO SOCIETY OF EYE, EAR, NOSE AND THROAT SURGEONS.

MARCH MEETING.

Dr. Henry L. Wagner, President, in the chair.

Dr. George W. Merritt presented *Two Tabetic Patients* with *White Optic Atrophy*, as illustrating that the atrophy of spinal disease is not always of the gray variety.

Dr. George H. Powers presented a boy who some time ago had been struck on the left eye by a ball, causing *Traumatic Cataract*. Several needlings had been done and some vision recovered, but a rather dense membrane remained. The plane of the iris is far back, making the anterior chamber excessively deep, and a peculiar spongy black substance occupies the whole periphery of the anterior chamber.

Dr. Pischl thought that the black substance is simply the pigment layer of the iris, exposed by the retraction separating the anterior layer.

Dr. Powers presented also a man who five days before had been *Injured by a Bit of Steel* from a chisel, which had penetrated the cornea iris and lens near the superior periphery. The iris was torn away at its upper periphery. The lens, when he was first seen, was swollen and opaque. Two days later Dr. Powers had taken patient to Dr. Pischl, who had used his giant magnet. The "pulling" was felt when the circuit was closed, and a piece of steel weighing six grains jumped suddenly to the pole. There had been no reaction, and there was perception of light, with ability to tell the direction of hand shadows.

Dr. Powers presented a third case. A young railroad employe in good health was taken with a sudden feeling of *Apprehension of Impending Calamity* so that he could not work. Two physicians who attended him thought there was cerebral lesion. In the meantime the patient had discovered on unintentionally covering his left eye, that the right was blind, and this frightened him to the verge of collapse. On examination it was found that the tension of the blind eye was normal, and that there are

posterior synechiæ, opacity of the lens and evidences of suppuration. Dr. Powers would like an opinion as to whether there is any connection between the mental condition and that of the eye, and as to the advisability or not of removing the eye.

Dr. W. F. Southard presented a man showing the *Extensive Ravages of Tertiary Syphilis*. The right eye is deviated far upward and outward. Part of the palate is lost and the vertebræ exposed. There is fair vision in the right eye.

Dr. R. W. Payne presented a rare *Case of Corneal Disease*. The patient, a man of about fifty, has worked many years in a smelter, being exposed to very irritating fumes. There is no specific or rheumatic history. On the cornea are elevations in patches, between which are clear transparent spaces. The elevations appear to be epithelial. Peritomy and curetting had improved the condition.

Discussion.—Dr. Southard had seen a similar case with Dr. Schloss in a child. The cornea was covered with elevated opacities similar to those in Dr. Payne's case, the cornea being perfectly clear between. He had shaved off a piece of the growth, and this was found under the microscope to be epithelium. Nothing similar is described in the books.

The Demonstration of the Tests for Muscular Anomalies by Drs. F. B. Eaton and V. H. Hulen was next in order.

Dr. Eaton said that the subject is so wide that it would be necessary to limit his demonstration mainly to the tests for what is variously termed suppressed squint (Maddox), heterophoria (Stevens), and superable squint (Duane). All deviations are strabismic, the difference between strabismus and heterophoria being one of degree, not nature. Strabismus can conveniently be defined as the Habitual Absence of Binocular Vision, and it is important to determine when this is the case.

Most of the tests are familiar, and only those would be dwelt upon which are misunderstood or neglected.

To insure economy of time, and accuracy, some form of optometer must replace the trial frame, and one was shown which had been devised by Dr. Eaton after the one of Dr. Risley, which is largely used in Philadelphia, and which insures proper centering and leveling of lenses and double rotary prisms. It is fixed to the chair and renders the examination more rapid, exact, and less fatiguing to examiner and patient.

The ultimate muscular condition should be found after careful correction of the refraction, but at the first consultation a certain routine of muscular tests is necessary to avoid error in prognosis, and misunderstandings.

Dr. Eaton makes the tests in the following order:

Inspection.—In addition to the ordinary observation of the movements, when the eye follows a pen point, etc., attention was drawn to the value of the ophthalmoscopic corneal reflection as an objective test, first introduced by Priestly Smith. The patient fixes the hole in the mirror at nine inches, and the reflections are referred to the cornea, not the pupil. This method is of particular value with infants, the light being thrown *rapidly* from one eye to the other.

Colored Glasses.—This test is familiar. Dr. Eaton had found that diplopia could be produced in all persons, provided the color is made intense enough. When diplopia is difficult of production, he had found at 20 feet esophoria to be almost invariably present. Stevens has stated that 1° of hyperphoria by a red glass indicated habitual diplopia, and also 1° or 2° of esophoria or exophoria, but Dr. Eaton had seen notable instances to the contrary.

Screen.—The screen or cover test is well known. It should be used in different parts of the field, for the near as well as for distance.

Parallax.—This test is generally made too rapidly.

Maddox Rod.—The light should be small with a background of black velvet. The tangent scale at 20 feet is the best method of using. At this distance esophoria of over 10° and exophoria over 8° or 10° by the rod indicates, generally, habitual loss of binocular vision. For the near test Dr. Eaton has found the Edw. Jackson rod with Maddox's small tangent scale the best. A clear black line is formed by the cylinder that acts as a rod out of the black head of the arrow.

Prisms.—In spite of its convenience, the Stevens phorometer is far less sensitive and accurate than the Maddox rod. This has also been the experience of Dr. Hubbell of Buffalo, who has shown that its findings, at least for distance, are unreliable.

Both the rod and phorometer findings are modified by the range of accommodation; also by spasm of accommodation from atropine and intense light. Stevens states that with his phorometer, hyperphoria of over 4° , and lateral heterophoria of over 8° , indicates habitual absence of binocular fixation.

Prism Abduction.—Double rotary prisms, one before each eye, turned on simultaneously, give the abduction with absolute accuracy. Noyes and Valk object to them as deceptive. For the near, abduction of 16° to 20° may be taken as normal. With good health, an abduction at 20 feet of 4° can exist without asthenopia.

Prism Adduction.—At 20 feet 20° , on to any amount, may be consid-

ered normal; for near, 30° to 40° . The dictum of Risley that "for distance the ratio of adduction to abduction is 3 to 1, had been found by Dr. Eaton to be a good working rule.

Convergence Near-Point.—This should be measured in meter-angles, the normal being, according to Landolt, $9\frac{1}{2}$ meter-angles on an average, or $4\frac{1}{8}$ inches from the eye; according to Duane, 2 inches, and he considers 1 inch abnormal. For an average interocular distance, 7° of prism (refracting angle) equals one meter-angle. Error will occur unless with presbyopia the patient be given correction for four inches. The length of time the subject can hold convergence for near is to be observed.

Monocular Field of Fixation.—This is taking its place as an important test in muscular astheopia. There is disagreement as to the normal bounds. Stevens is at variance with all other observers. The method is of value in determining the muscle or muscles at fault in old cases of paresis with contraction of the antagonists and consequent concomitancy. Also before operating to indicate whether tenotomy or advancement is indicated, etc. Dr. Eaton had shown his own tropometer, by which he could measure the rotations with great accuracy.

Dr. Hulen in beginning his demonstration stated that he would give the tests as he himself had used them and not as others had. He first inspected the face and skull as to possible asymmetry. He had not found muscular troubles at all connected with asymmetry. One muscular test will show abnormality, another none, hence we should employ a number of them.

Dr. Hulen had found the *Maddox Rod Test* more accurate and searching than the Stevens phorometer, nevertheless the latter instrument had given great satisfaction, owing to its great convenience.

Stevens' Stenopaic Lens.—This piece of apparatus Dr. Hulen had found very useful. It was the only test he was acquainted with that gives at once all the deviations, vertical and horizontal.

He rarely gives prisms as a prescription since they weaken the muscles and have to be increased in strength.

He had watched Dr. H. D. Noyes, and had found his method of using square prisms the best. He demonstrated *Dr. Noyes' Holder*, consisting of a central stem 20 inches long, graduated in inches, centimeters and metric angles, on which is a slider carrying test cards, and containing three cells before each eye into which corrective glasses and square prisms can be used. This apparatus is also useful in determining the existence of spasm of accommodation.

Dr. Hulen also demonstrated a *Small Trial Box* he had made to hold

lenses and square prisms, and which he uses on the arm of a Stevens phorometer.

The *Stevens Tropometer* was then demonstrated, and Dr. Hulen believed this to be the best instrument devised for the purpose.

On motion, the discussion of the demonstrations of Drs. Hulen and Eaton was deferred to the next regular meeting.

SECTION ON OPHTHALMOLOGY.

COLLEGE OF PHYSICIANS OF PHILADELPHIA.

Meeting March 20, 1900. Dr. George C. Harlan in the chair.

Dr. Wm. Campbell Posey exhibited a case of *Bilateral Enlargement of the Lacrimal Glands* in a colored girl, 12 years old. She was probably of scrofulous diathesis, having been treated some years previously for phlyctenular ulceration of the left cornea. The swelling in the upper lids had been noticed for two weeks while the child was apparently in good health. There were no signs of active inflammation about the eyes, but both upper lids presented an abnormal degree of fullness which was found on palpation to be occasioned by the presence of firm elastic bodies, almost symmetrical and slightly roughened on their edges, occupying the position of the lacrimal glands. There were no glandular enlargements elsewhere.

Dr. A. G. Thomson exhibited a marked case of *Synchysis Scintillans*, occurring in the right eye of a woman 45 years old. Instead of the usual flakes floating in the vitreous, the cholesterine crystals extended in all directions, and when examined by the ophthalmoscope, had the appearance of fine branches of a tree covered with snow.

Discussion.—Dr. Oliver showed a water-color sketch of a case of cholesterine crystals in the superficial layers of the retina, accompanied with chorio-retinal changes in the macular and circumpapillary regions, occurring in an apparently healthy male subject of 18 years of age.

Dr. Charles A. Oliver exhibited a case of *Traumatism from the Lash of a Whip*, resulting in marked palpebral swelling and lacerated wound in the conjunctiva, and a foreign body (not the tip of the lash) in the cornea. The case was seen a few minutes after the accident. Vision was reduced to one-half of the normal, and the fields of vision were somewhat concentrically contracted. Ten days later the eye-ground showed an isolated curvilinear rupture of the choroid in the macular region. The

crystalline lens was slightly dislocated, and there were some vitreous opacities.

Dr. Oliver also gave a detailed account of a case of recovery of vision by an *Iridectomy with Removal of Lens Capsule and Lens Debris in a Case of Blindness of more than 13 Years*. The patient had both eyes rendered useless by a mining explosion. The left eye had become blind and shrunken. A large field of good light-perception in the quiet right eye gave promise of a betterment of his condition, and the procedure noted above was attempted, the results being a permanent vision of $\frac{5}{25}$.

Discussion.—Dr. de Schweinitz referred to the case of a man, aged 75, who had been blind for many years, the right eye having a large corneal macula nearly central and a ripe cataract, and the left eye presenting a large leukoma with adherent iris and opaque lens capsule, the result of a knife thrust in childhood. The extraction of the lens in the right eye gave vision of $\frac{10}{20}$. In the hope of benefiting the vision of the left eye, which had been blind since the accident, an iridectomy was performed and a section of the iris with the attached shrunken lens removed. Vision with a + 18 D. lens equaled $\frac{20}{40}$. Dr. Harlan instanced a case in which useful vision had followed an operation 33 years after the accident that had destroyed sight. Dr. Risley said that the time intervening between the operation and the original injury was an important factor in the successful results achieved in these cases. The good vision secured, he believed, was due to the late day at which the operation was performed, when the eye had settled into a quiescent state, and was better than if the attempt were made shortly after the injury, when the eye was in an irritable condition.

Dr. Wm. T. Shoemaker read a paper upon the *Relation of Tenon's Capsule and the Check Ligaments to Enophthalmos*. He called attention to the firm attachment of the fascia to the periosteum at the orbital margin, and at the optic foramen, forming primarily a fascia cone from which subsidiary extensions issue, investing more or less completely every structure within the orbit. Within this cone rests the eyeball further supported by its individual investing membrane, or Tenon's capsule proper of some anatomists. This fascia is divided into two portions, the posterior of which invests the posterior hemisphere of the eyeball and receives a direct attachment from each of the check ligaments, thus forming a sling passing around the eyeball with its anterior attachment at the orbital margin. The check ligaments contain smooth, muscular fibers, discovered by Sappey, which are under sympathetic innervation. He believes all the forces, active and resisting, applied in ocular move-

ments, must ultimate in the bones of the orbit; the orbital fat and cellular tissue could only act as a cushion or buffer, and not as a fulcrum around which to change the direction of the applied forces. The theories thus far advanced for the causation of enophthalmos are in effect the same, in that they depend upon an actual or relative increase in the orbital capacity. Discussing the sympathetic theories, both the absorption theory of Beer and that of paralysis of Mueller's orbital muscle (Shapringer), he asks if the lesion causing the pathological condition in both these theories could not also cause paralysis and nutritional disturbances in the smooth muscle of the check ligaments, thus allowing a relaxation of the supporting fascia. The cicatricial theory (Gessner) he thinks untenable in recent cases, for the reason that cicatricial contraction, being the last stage in the inflammatory process, is pathologically not permissible within the short time that enophthalmos often follows injury. Regarding fracture of the orbital walls as held by Lang, Tweedy, Langenback, and others, to be the cause of this condition, he thinks with Denig that cases of undoubted and extensive fracture, causing a violent and absolute displacement of the eyeball, should be considered as such and not as enophthalmos. Other fractures he thinks more likely to be linear than depressed, and believes they would, theoretically at least, diminish rather than increase the size of the orbit.

In conclusion, it seems to him probable that the orbital fascia, including Tenon's capsule, is necessary to the maintenance of the eyeball in its natural position; that this fascia may become incapable of performing its function from many causes; that enophthalmos will result from disease or injury of the fascia, if so situated and extensive enough to throw the balance of power in favor of the enophthalmic forces; that this may be the case in paralysis of the smooth, muscular fibers in the check ligaments, or in nutrition disturbances leading to atrophy or relaxation of the same; that it may result from traumatic rupture of the check ligaments or the orbital attachment of the fascia, or especially liable would it be to follow rupture of the posterior investing sheath of the eyeball. Finally, as the check ligaments are highly elastic, and the whole orbital fascia is fibro-elastic in character, the combined and simultaneous action of the four recti muscles, which rarely occurs, producing spastic enophthalmos, would meet with a physiological protest, but not with prohibition on the part of Tenon's capsule. Likewise the elasticity of the fascia must be reckoned upon in those cases of enophthalmos said by some to follow a combined paralysis of the two oblique muscles.

Dr. Shoemaker instanced the case of a man, aged 32, who received a

pitched baseball directly in the orbital entrance of the right eye. He was knocked down, but did not become unconscious, and came under treatment within a short time. The lids were swollen and tense. There was extensive emphysematous crackling extending backward over the temporal fossa, and a demonstrable rupture of the conjunctiva through which air escaped on pressure. The nasal bone at the base was fractured on that side. The orbital margin elsewhere seemed to be intact. The cornea was clear and uninjured; conjunctiva ecchymotic; a small hemorrhage into the anterior chamber and very faint reflex from fundus; vision equaled counting of fingers at 3 meters. Treatment consisted of ice compresses. The following day the lids were less swollen, pupil evenly dilated, fundus clearly seen, and the macula apparently healthy. A little below and to outside of macula was a very faint, crescentic, grayish streak about $1\frac{1}{2}$ disk diameters in length. Ten days after injury vision was $\frac{5}{15}$, pupil slightly larger than in left eye, iris reaction to light diminished. Patient did not return for two and a half weeks, when enophthalmos was noticed. Vision unchanged, pupil partially dilated and reacting sluggishly to light, and accommodation much diminished. The crescentic streak near the macula had entirely disappeared. The patient was not seen again for two and a half years, when he presented the following condition: Palpebral fissure same width as on left side, but the fold above the upper lid was much deeper. The eyeball was $2\frac{1}{2}$ mm. lower, and had receded within the orbit 2 mm. further than left eye. The pupil was nearly round, larger than that of left eye under like illumination, and the iris showed limited activity to light, accommodation, and convergence; the movements of eyeball full in all directions. There was also lessened sensibility of skin on right side of face in neighborhood of the orbit. Vision, $\frac{5}{10}$, not improved. Reads type .37 from 17 to 23 cm. imperfectly. Fundus normal. Examination of muscles at 5 m. gives right hyperphoria, 1° ; esophoria, 6° to 11° ; adduction, 23° ; abduction, 5° ; supraduction and infraduction, each $1\frac{1}{2}^{\circ}$. At 30 cm. no hyperphoria; esophoria, 2° . At no time did patient have diplopia.

Discussion—Dr. de Schweinitz, after congratulating Dr. Shoemaker upon the excellence of his paper, referred to a case of traumatic enophthalmos he had described five years ago, which seemed best explained by the hypothesis that retraction of the eye may be caused by lesion of the sympathetic. In addition to the clinical cases which have been advanced to support this hypothesis, it is further established by experiments upon animals, as has again been recently shown by Dr. Walter Edmunds, in England. The "sympathetic theory" is not, however, excluded by

Dr. Shoemaker's suggestions, only that he makes a somewhat different application of it. If rupture of the Tenon's capsule and the check ligaments is the sole cause of enophthalmos, then it is difficult to explain why the phenomenon does not more frequently appear after operations upon the orbit. It is easy to understand why ordinary tenotomies would not produce the condition, but more extensive operations, like elaborate advancements, operations undertaken for the removal of tumors of the orbit, and cases of abscess in the orbit, examples of which Dr. de Schweinitz recited where he knew the capsule of Tenon and the check ligaments had been extensively disturbed without producing enophthalmos, ought to have a different effect. Doubtless each case of enophthalmos could not be explained by one theory alone. Dr. Risley regarded Dr. Shoemaker's explanation of the occurrence of enophthalmos, while not conclusive, the most satisfactory with which he was familiar. That enophthalmos does not follow operations upon the eyeball, he believed to be due to the fact that the lacerations were not sufficiently extensive to involve the capsule throughout the extent of the circle of the globe. Dr. Shoemaker stated that tenotomies are not followed by enophthalmos because all the interference is anterior to the supporting fascia and does not disturb it. The extensive surgical interference practiced in some suppurating cases without causing enophthalmos he argued to be in favor of the importance of the orbital fascia, because the fascia remains intact. This is also an argument against the absorption theories. Furthermore, the wounds produced in the fascia in thus operating are punctures with a narrow knife, and are quite different in effect from rents or tears. He believed that the fascia being fibro-elastic is one of the most resisting structures, and the last to yield to suppuration.

Dr. George E. de Schweinitz read a paper *Concerning the Filling of Collapsed Eyeballs with Physiological Salt Solution*. After referring to the observations of Joseph A. Andrews and Herman Knapp, he related the history of a case of extraction of a cataract in which at the conclusion of the section the patient suddenly squeezed the lids together so hard that the lens was forcibly expelled and shot some distance out upon the bed. There was large prolapse of the vitreous and tearing loose of the upper half of the iris, which, curled and anteverted, fell to the bottom of the anterior chamber. The iris was withdrawn from this position, cut off as in the operation of iridectomy, and the collapsed eyeball filled with a warm physiological salt solution, producing immediate coaptation of the wound and return of the eyeball to its normal shape. The patient readily counted fingers. There was uninterrupted healing, and seven weeks after

the extraction the vision, with $+ 11$ S. $\ominus + 3$ C., axis 180, was $\frac{6}{15}$. The eyeground could be well studied, the only changes being some vitreous opacities. Other complications in this case were chronic hypertrophic blepharitis with trichiasis and associated conjunctivitis.

Discussion.—Dr. Zentmayer stated that he had injected physiological salt solution in a case of collapse of the globe following attempts to remove a piece of steel. The eyeball was preserved for two weeks following this procedure, but enucleation was performed for fear of sympathetic inflammation. Dr. Hansell's discussion called attention to the use in 1865, by Webster, of injections of salt- and boric-acid solution into the anterior chamber for the purpose of removing lens matter and other foreign bodies, and recently had employed injections of salt solution in a collapsed eyeball following a severe injury of the ciliary region. A large amount of vitreous had escaped, and this had been replaced by two syringefuls of normal salt solution. The conjunctival wound was closed by sutures. The ball regained its normal form and outline, but vision was lost. He was uncertain as to the value of injections, since he had seen the vitreous chamber entirely rehabilitated after extensive loss of vitreous fluid following cataract extraction. Dr. Ziegler referred to three cases of extensive loss of fluid vitreous. In the first he caught the lost vitreous in a pipette and restored it to the chamber; in the second he injected sterile water; and in the third he inserted a corneo-scleral suture prior to injecting the sterile solution, and thus was enabled to avoid further escape of the contents of the vitreous chamber. Good results were achieved in all, but best in the suture case. Dr. Harlan referred to the recovery of form and shape of the ball through the recuperative power of the eye without recourse to artificial substitutes for the vitreous. His experience included several cases of good recovery without resorting to injections.

Dr. S. D. Risley reported a case of *Left Hemianopsia, with Alexia*, partial temporary visual aphasia, amnesia, and amnesic color-blindness following an attack of influenza. The patient, a large, muscular man of previous good health, was attacked with vertigo in September, 1898, while at the dinner-table, being subsequently awakened during the night with hemicrania, unassociated with nausea or vomiting, but accompanied with tense pulse and rise of temperature. The following morning he became unconscious, and remained so for three days, during which time he vomited frequently. For three weeks there were lucid intervals, with prolonged lapses of insensibility. When consciousness was sufficiently restored he noticed confusion of vision, failing to recognize members of his family and friends until they spoke to him, although able to see them

with clearness. Examination two months after the beginning of the illness showed absolute left hemianopsia, vision $\frac{6}{20}$, the test letters being called with but little hesitancy, but a printed page could not be read except by spelling aloud each word, letter by letter, and then reading the phrase or short sentence so spelled out. He could write a letter, but was unable to read it if a few minutes intervened. He could add a column of figures with but little difficulty. He could match but not name the Holmgren color skeins, although it was impossible to deceive him by miscalling any of the colors. The ophthalmoscope showed a retrograde optic neuritis. Under ascending doses of potassium iodide all the symptoms improved, the vision rising to nearly normal, the hemianopsia for form disappearing, although returning under fatigue, but the word-blindness remained, so that he was unable to read a book. In March, 1900, following severe mental anxiety due to illness of an only son, the hemianopsia and alexia became as complete as when first seen. The left hemianopsia associated with the word blindness was pointed out as peculiar, although, unfortunately, no note was made as to whether the man was left-handed or not.

Discussion.—Dr. Thorington referred to a case of an elderly woman whose left arm and leg became paralyzed following an attack of apoplexy. Aphasia was a prominent symptom, and illustrated the classification suggested by Hinshelwood, of Glasgow, that aphasia may be divided into three classes, consisting of mind, letter, and word blindness. After some months the patient recovered from the mind and word blindness, but remained unable to recognize correct mental conception of letters. The ability to correctly name numerals marked the first step in her recovery.

Dr. S. D. Risley presented a brief history of a case of *Partial Paralysis of the Third Nerve* on the right side, following a severe blow on the right superior frontal region. The man, aged 48, was thrown violently from a buggy, and a large area of the right frontal region was denuded, and the scalp turned forward over the face. After two days of total unconsciousness he slowly recovered. Three months after the accident there was nearly complete paralysis of all of the branches of the third nerve, except that supplying the levator, which was intact.

WILLIAM M. SWEET,
Clerk of Section.

CHICAGO OPHTHALMOLOGICAL AND OTOLOGICAL SOCIETY.

A regular meeting was held April 10, 1900, with Dr. Wescott in the chair.

Dr. Wm. A. Mann presented a patient, a boy, with *opaque nerve fibers*. Quite a large plaque could be seen at the lower part of the left eye running down and out. Associated with this condition was posterior staphyloma. As the diagnosis was questionable, he presented the case in order to elicit the opinions of the members. The fact that the vessels burrowed in part of the way would exclude simple atrophy or an inflammatory exudate. The eye was myopic, 6 or 8 D., and the deepest part about 10 D. There was divergent strabismus; vision in the affected (left) eye being about $3/200$, while the other eye was practically normal.

Discussion.—Dr. Henry Gradle said the diagnosis of opaque nerve fibers in this case was questionable, as there were many points in favor of its being an inflammatory exudate. The extent of the process is very unusual. The small radiation on the inner side of the disc is difficult to distinguish from myelated fibers. The appearance favors more the exudate of choro-retinitis in connection with a high degree of myopia than that of an anomaly like myelated fibers. He raised the question as to whether myelated fibers are observed in myopic eyes. Personally he had never seen them in high degrees of myopia.

Dr. Casey Wood was inclined to believe that the case was one of opaque nerve fibers. The feathery appearance about the deposit indicated that it was originally, at least, a case of opaque nerve fibers. It is interesting to decide the question as to whether opaque nerve fibers have been seen in high degrees of myopia.

Dr. H. V. Würdemann, of Milwaukee, has had under observation for fifteen years a case in which in one eye there is three-fourths D. of myopia, while of the other eye he happened to know the exact refractions, the patient being a member of his own family there is 6 D. of myopia, with about 6 of regular astigmatism. In his case the nerve fibers are greater in extent and occupy the same unusual course as in the case presented by the essayist. They come out from all sides of the disc. In addition, in his own case there is coloboma of the optic nerve and of

the macula lutea. He had seen one other case in which there were opaque nerve fibers in both eyes, accompanied with a moderate degree of myopia, perhaps 2 D. In the case of Dr. Mann he would decide in favor of a congenital anomaly which had been more or less changed by the progress of the myopia. By looking beyond the edges of the opaque nerve fibers, a certain degree of choroiditis could be seen. The degenerative changes which had taken place in the eye during the progress of the myopia had undoubtedly materially modified the appearance of the nerve fibers.

A Case of Trachoma with Unusual Involvement of the Cornea.—Dr. Wm. E. Gamble showed a patient, 50 years of age, who had had eye trouble for thirty years. A considerable deposit of connective tissue could be seen in the conjunctival sac, it being more abundant in the transitional fold of the lower lid. There was not a great deal of connective tissue deposit in the conjunctiva of the upper lid and tarsus. Inspection of the eye, at first, gave the appearance of arcus senilis corneæ, but on further observation there is no transparent line of cornea between this opacity and the periphery. The opacity is in the superficial planes of the cornea, and not deeper, as is noted in arcus senilis. The author's explanation is that it is an anomalous deposit of connective tissue, the sequel of trachoma. These opacities are seen following trachoma, and are due to ulceration of the cornea. Changes were observed in the choroid.

Dr. Casey A. Wood presented a case of *Sarcoma (?) of the Ciliary Body with Plastic Uveitis and Synchysis Scintillans*. Mrs. H. G., æt. 20, had never had any trouble with her eyes until two years ago, when she first noticed that her left eye was "crossed." She had always had fair health, and the deviation of the eye appeared to follow her (normal) confinement. She had no local symptoms apart from this until October, 1899, when she had an attack of scarlatina. This was followed by pain in the left eye and head and loss of vision. Since then the pain has been more marked in the eye, extending to the forehead and temple, and now coming on daily. Any attempt to use her eyes produces pain in both; although the sight is practically gone in the affected eye. The left globe is tender to the touch, and there is considerable scleral redness.

An examination of the eye shows the left globe to be decidedly divergent. The tension is +1 with a shallow A. C., semi-dilated pupil, irresponsive to light and accommodation. Consensual contraction normal. There is ciliary and scleral injection. Cornea, pupil and lens clear. From the depths of these tissues a whitish-yellow reflex. V.=no pl. With a +12 or +14 lens the posterior chamber is seen to be occu-

pied by a nodulated, whitish-yellow vascular growth, presenting within a few mm. of the posterior surface of the lens. A diagnosis of intraocular tumor was made and enucleation was performed the next day. Both halves of the divided eye were mounted in gelatine by Dr. Würdemann, of Milwaukee. One of these was given to Dr. Brown Pusey, of Chicago, who made a microscopical examination of it, as well as of the optic nerve, about 10 mm. of which was resected at the time of the operation. Macroscopically the half eye showed cornea and lens to be clear, the pupil semi-dilated, and the iris crowded against the posterior surface of the crystalline and into the sclero-iridic angle. The anterior third of the posterior chamber is filled with a partially organized whitish-brown exudate, with vessels running through the mass. An extension of this opaque white exudate follows the canal of Cloquet to the posterior wall of the globe. The remaining two-thirds of the vitreous is far from normal, being of a smoky tint and sprinkled throughout with innumerable crystals of cholesterol. Four mm. behind the lens, but showing no visible connection with the ciliary body, is a brownish pigmented mass that is easily distinguishable from the remainder of the whiter deposit about it.

From the macroscopical appearance Dr. Würdemann believes the deposit to represent a plastic uveitis only, probably embolic in character, while Dr. Pusey is of the opinion that the exudation is due to the presence of a melanotic sarcoma arising from the ciliary body, composed of small pigmented spindle cells with large nuclei, containing the usual thin-walled vessels. Dr. Hektoen, who also kindly examined the intraocular deposit, concurs in Dr. Pusey's opinion. It was most unfortunate that, through a misunderstanding, both hemispheres were imbedded in formalin jelly, thus making a subsequent microscopical examination unsatisfactory. The optic sections all showed perfectly normal tissue. The principal interest in the case arises from the difficulty in making even a post-mortem diagnosis. Treacher Collins and others have shown that while secondary glaucoma, with increased tension, pain, etc., does not always accompany intraocular neoplasms, and that ciliary sarcoma produces it in about 35 per cent of all cases, as opposed to 68 per cent of all choroidal sarcomata, yet the presence of increased tension with a vitreous deposit almost invariably means tumor.

Discussion.—Dr. Würdemann said he had something to do with the specimen in connection with Dr. Wood's case, and had already given an opinion. He would like to give his reasons in substantiation of the same. While the clinical history in this case shows there was tension,

in ordinary cases of irido-cyclitis or plastic uveitis we do not find hypertension, but rather hypotension. We very seldom find in sections of specimens from malignant growths of the eyeball that the condition of synchysis is present, as here. Then, again, the exudate is similar to that of plastic uveitis. It is practically impossible to demonstrate a tumor as having a relation to the ciliary body. The specimen shows infiltration by round cells, and one may call them spindle cells, into the ciliary region, and some pigment possibly from the ciliary processes. He is inclined to believe this to be a case of uveitis.

Spring Catarrh.—Dr. Albert B. Hale presented a case in which he had made a diagnosis of spring catarrh. This man has had this trouble for some time. He has been treated in various ways, but nothing seems to be of any service. His eyes have bothered him a little, but pain has not been intense. He is rather run down in health and needs a tonic. The remedy which did him most good was Fowler's solution of arsenic, which, according to some text-books, is about the only internal remedy we have for this condition. In the left eye, where the indications were most pronounced, objective signs have largely disappeared. There were little shallow blebs remaining on the conjunctiva, creeping out from there one time and another without giving very much distress, but these have largely disappeared. In the right eye the only indication of acute trouble was invasion of the cornea, which seems to irritate his eye so much that I had to resort to atropine to relieve the pain, and of course interfered a little with his vision.

The only treatment that Dr. Hale has used intentionally has been 1 per cent solution of holocain, for two reasons, one of which is that no text-book or any system of treatment of eye diseases seems to give any suggestion at all about treatment; the other reason is that he desired to try this drug alone, because, apart from its anesthetic qualities, it seems to have a very pleasant and gentle antiseptic property on both the conjunctiva and cornea, and if spring catarrh is the result of an invasion from some micro-organism, which is very probable, the holocain might have some antiseptic action sufficient to reduce the infection and restore the eye to its normal condition. The patient's eyes do not look so much irritated as they did two or three weeks ago when first seen.

Discussion.—Dr. Gradle does not think that this case comes under the head of spring catarrh, because the changes in the eye-bulbs are not at all characteristic, and the absolutely constant changes in the palpebral mucous membranes are wanting. These latter symptoms are constant, never absent in this condition. Dr. Gradle mentioned several other

points to show that the case was not one of spring catarrh, but he considered it the sclerosing form of sclero-keratitis.

Dr. Wood said he had seen a few cases of spring catarrh, but the case of Dr. Hale he thought was not one of ordinary vernal conjunctivitis, and the evidence was not sufficient in his opinion to warrant such a diagnosis. The race to which the patient belonged is subject to trachoma, and it appeared to him that trachomatous changes were taking place in this man's eyes. He would liked to have seen the case earlier when the changes in the conjunctiva were more marked than they are at present. He had seen one or two cases of bulbar vernal catarrh, and these were very characteristic. The fact that Dr. Hale's patient improved under holocain looked suspicious as to the case being one of spring catarrh. He had tried Randolph's treatment and all sorts of things in his cases, but the patient eventually left him and consulted some other ophthalmologist.

Dr. Hale, in rebuttal, said he did not wish to convey the impression that holocain had been a specific in this case, but the patient had not become worse, but, on the contrary, felt that he was getting better. If the treatment of Randolph by salicylic acid was a specific in these cases, Dr. Hale thought that holocain, judging from this one case, was equally a specific.

With reference to the remarks of Dr. Gradle, the bulbar condition three or four weeks ago was marked, and so far as he had seen cases of spring catarrh this case was rather characteristic of it. So far as invasion of the cornea is concerned, the speaker could cite one or two authorities who maintain that the sclerosis does invade the cornea in spring catarrh. However, he does not claim that the case is typical by any means.

Dr. Albert B. Hale showed a case with a large number of *floating opacities in the vitreous*. The man has been under his charge for a year. He was in the hospital three weeks ago, was treated with inunctions and various other antiluetic remedies and stimulants, and the condition was somewhat overcome. His vision was slightly improved. The fundus could be more clearly observed, particularly in the left eye. Vision in the right eye, the first record made, was barely 6/72. In the left eye it was nearly 6/24. He left the hospital at that time. A good view could be obtained of the disc in the left eye, and in the right there was an edematous condition and an opaque vitreous. Dr. Hale had not seen the patient for two or three months until he came back the other day, when the vitreous was much more opaque in the left eye. He had a

great many floating bodies in the eye. Vision in the left eye was such that he could barely count fingers at one meter; in the right eye he could count fingers at less than a meter.

The interesting feature in this case is the number of floating bodies, the ease with which they can be detected, and the slow growth of the condition. There has been no evidence of change within the last year. He is a cigar-maker by occupation, and it is only within the last three or four weeks he has quit work. It is not exactly a condition of synchysis, but very close to it.

Perverved Vision.—Dr. Albert B. Hale: At a recent meeting of the Society Dr. Hotz narrated two cases of inverted vision, but he gave no demonstration of them. At the same meeting Dr. Hale mentioned rather cursorily the experience he had had with his own son, who, without any suggestion on his part, had been experimenting in learning his letters and his alphabet, and in so doing had inverted them. Since then Dr. Hale caught him one morning making pictures on the blackboard. He got a piece of paper and asked him to make the letters as he saw them. He put down the numerals, but his writing was so cramped that it was hard to pick them out. You will notice that he makes his numerals in this way:

1 2 3 4 5 6 7 8 9 10 11 12 13 14 15
16 17 18 19 20 21 22 23 24 25 26 27

Dr. Hale's explanation is that it is not altogether a perversion of the sense of sight; he thinks it is a reversion to a primitive interpretation of the visual phenomena we get, in which it is supposed that the retina receives an inverted image, and the brain by experience, both acquired and inherited, learns how to interpret the phenomena by which we can project them to the outer world as we know them to appear. He does not actually get the whole image upside down, but gets them very much perverted from the way we look at them.

In his early alphabetical experiments he made the letters all upside down. For instance, the letter A would be written in this manner, ∇, and U this way, ∩.

Dr. Hale brings this matter up for the reason that there may be many other cases of children who make their letters and numerals in this way.

Very little has been mentioned in the literature he has had a chance to go through of the method of learning how to write. There is a

great deal of literature with reference to pathological writing, that is, writing produced by brain lesions, in many cases of which undoubtedly the brain reverts to its earliest conditions. He has not been able to find any interpretation of this in the psychological laws of writing, but only the physical laws. He believes there is an essay on writing which he has not had time to study very thoroughly. Dr. Kuh, who was present, has read this article.

Dr. Sydney Kuh: The case of Dr. Hale interested him principally because it seems to throw a new light upon conditions with which we meet in some cases of hemiplegia. The essay to which Dr. Hale referred is one by Erlenmeyer on writing, in which he speaks of similar conditions occurring in cases of hemiplegia, and gives an explanation which does not seem very satisfactory, and it is even more unsatisfactory to him after hearing of Dr. Hale's case. He says that when in hemiplegia, patients attempt to write with the left hand, we get results similar to those that have been demonstrated this evening, because if exactly the same muscles are employed in the left hand which would be normally used in the right the result would naturally be inverted writing. He has seen letters written exactly like those that have been drawn on the board by Dr. Hale.

Dr. Kuh recalls the case of a young girl who just began to learn to write her letters. She made them with some difficulty with the right hand. She had hemiplegia and began to write with the left hand, and the result was exactly what we have seen here.

Another specimen he has in his collection came from a woman, about 40 years of age, who suffered from hemiplegia caused by cerebral syphilis, and the results were similar to those shown.

The examples shown by Dr. Hale prove one thing, if they prove anything at all, and that is that Erlenmeyer's explanation cannot be the correct one. He asked Dr. Hale what hand his child used, and he told him the right hand.

Dr. Wescott was inclined to believe that the practice of inverting the letters among children was more or less common and cited the case of his 5-year-old daughter, saying that she made her letters similar to those in the case of Dr. Hale's son. When, however, he called her attention to the matter and corrected her, thereafter she formed the letters in the proper way.

Dr. Gamble narrated the case of a girl, 22 years of age, who told him that she would always see things upside down whenever she became tired or greatly fatigued.

NEWS ITEMS.

*Personals and items of interest should be sent to
Dr. Frank Allport, 92 State St., Chicago.*

DR. M. OHLEMANN has moved his residence permanently to Weisbaden.

DR. LYMAN WARE, of Chicago, is building himself a beautiful new home on Drexel Boulevard.

DR. GEORGE H. FISK, of Chicago, has resigned from the Medical Board of St. Luke's Hospital.

DR. G. W. MAHONEY, of Chicago, has moved his office to the Reliance Building, 100 State Street.

DR. EDWARD J. BERNSTEIN, of Baltimore, Md., will be abroad for six months this year studying in German hospitals.

DRS. JAMES B. CLEMENS, T. Passmore Berens and Wendall C. Phillips have just been appointed surgeons at the Manhattan Eye and Ear Hospital.

AMONGST the Board of Trustees of the St. Louis Medical Library, appointed at its last annual meeting, April 15th, we note the name of Dr. A. Alt.

THE annual oration before the Chirurgical Faculty of Maryland was this year delivered by Dr. G. E. de Schweinitz, who took for his subject the "Changes in the Vessels and Vascular Coats of the Eye which are of Diagnostic and Prognostic Value in General Disease."

AT a meeting of the St. Louis Medical Society of Missouri, held April 28, 1900, Dr. J. Ellis Jennings read a paper upon the subject of an "Enucleation of an Eye, with Implantation of a Glass Ball into the Artificial Cavity; the Use of a New Form of Artificial Eye."

SEVERAL new appointments have been made at the Rush Medical College, Chicago. They are as follows: Cassius D. Wescott and William H. Wilder are promoted to assistant professorships. E. A. Lawbaugh is appointed assistant to an associateship, and R. A. McArthur is appointed to a clinical associateship.

AT its last meeting, the Board of Trustees of the Eye, Ear, Nose and Throat Hospital of New Orleans elected Dr. Gordon King to the position of acting surgeon in charge of the ear, nose and throat department of that institution. At the same meeting, Drs. H. J. Dupuy and A. B. Caudet were made assistants in that service.

DR. BOERNE BETTMAN, of Chicago, who has been ill for some years and been resting in Europe, arrived in New York Saturday, April, 14th, and is now back in Chicago. We regret to learn that Dr. Bettman is still in poor health, and we certainly extend to him the best wishes of the RECORD, and the hopes that he will soon be well again.

DR. C. H. BEARD, of Chicago, has been appointed a member of the International Jury of Awards, group 3, class 16 (medicine and surgery), at Paris. The appointment was made by the French government through the recommendation of the United States Commissioner General. He expects to sail June 14th, to be gone about two months.

PHYSICIAN'S LIFE THREATENED.—Dr. Charles Shaffner, a well-known ophthalmologist of Philadelphia, narrowly escaped injury at the hands of an insane woman last week. Five shots from a revolver were fired at him, but luckily none of them took effect. The woman appears to have been plotting the deed for some months, testifying that voices from heaven had commanded this action.

SUBCONJUNCTIVAL INJECTIONS OF SUBLIMATE IN ULCERS OF CORNEA. —F. Amata—An experience with forty-two cases of severe ulcers of the cornea has convinced Amata that this method of treatment far surpasses all others in simplicity and efficacy. A single injection was sufficient in all but one case. He uses Sgrosso's formula—corrosive sublimate, 5 cg.; sodium chlorid, 10 cg.; aq. dest., 100 gm.—after cocain.

AT the April meeting of the Denver Ophthalmological Society, officers were chosen as follows: E. W. Stevens, secretary; Wm. C. Bane, treas-

urer; D. H. Coover, chairman of the executive committee. The society has no president, but the member at whose office the meeting is held usually acts as chairman. Meetings are held from October to April, inclusive.

MEDICAL AND CHIRURGICAL FACULTY OF MARYLAND.—The annual address before the faculty will be delivered on April 25th, by Dr. G. E. de Schweinitz, of Philadelphia. It is proposed to continue the practice inaugurated during the centennial meeting last year, of devoting the mornings to clinics at the various hospitals, while the afternoons and evenings will be devoted to the scientific and business matters and to social functions.

AMONG the papers to be read at the Missouri State Medical Society at its forty-third annual meeting at Mexico, Mo., May 15th, we note the following: "A Report of Ophthalmology and Otology," by J. H. Thompson, of Kansas City; "Entropion and its Rational Treatment," by J. L. Short, of Kansas City; "Intraocular Tumors with Specimens," by G. Barck, of St. Louis; "Clinical Memoranda of Eye Cases," by Dr. J. Ellis Jennings, of St. Louis; "Total Ciliectomy, by M. F. Weyman, of St. Joseph.

DR. GEORGE FROTHINGHAM, one of the leading ophthalmologists of the country, died in Detroit, Mich., from Bright's disease. He was born in Boston in 1836, and graduated from the medical department of Michigan University in 1864. In 1867 he became a member of the faculty, and in 1870 was made professor of ophthalmology and filled that chair until 1889. In that year he left the university because of differences with the authorities over moving the medical department to Detroit, and has since practiced in Detroit.

MODEL OF EYE NOT SCIENTIFIC APPARATUS.—In the opinion of the United States Treasury Department, a model of a human eye imported for an institution established for philosophic, educational or scientific purposes is not a philosophic or scientific instrument, preparation or apparatus within the meaning of, and entitled to free entry under, paragraph 638 of the tariff act of July 24, 1897. The reason given for this ruling is that the article is not used for the purpose of making observations and discoveries in nature, or for experiments under which they can be called into activity, but is intended rather as an object lesson to classes in anatomy or optics.

THE Board of Education of Denver, Colo., is doing good work in the way of superintending free educational lectures to the people. Some of these lectures are of a medical nature, and we notice that Dr. Edward Jackson delivered in the high school building, April 9th, on "The Eye and How to Care for It." We are glad to see the prominent physicians are becoming willing to talk to the people in a proper way upon medical matters. We believe this to be the best way in which to instruct people how to care for their bodies, and how to keep away from quacks and those who pretend to instruct them through the mediumship of nauseating advertisements and circulars.

EYE-REFLEXES CONSIDERED IN RELATION TO RECRUITING FOR THE ARMY.—F. Lagrange believes that many men could be enlisted for the army who are now rejected because of defective sight. As to the question of astigmatism, he thinks it a simple matter, with the present use of the skiascope and ophthalmometer, with which every military hospital should be supplied, to test the eyes and accept those for whom correcting glasses can be given. Astigmatism should not be given as the reason for the exclusion of many cases which can be readily brought up to or above the medium. The higher degrees of abnormal vision due to astigmatism should cause exclusion because of the frequency of intra-ocular lesions.—*Le Bulletin Médical*, December 16, 1899.

MANY BLIND RUSSIANS.—Statistics which have just been compiled show that of the 302,000 totally blind persons in Europe, 192,000 are natives of Russia, and this means that out of every 500 subjects of the czar there is one who is deprived of sight. In no other country do we find this terrible affliction by any means so widespread. In Germany, France, Great Britain, Italy and Spain there is only one blind person in every 1,000 inhabitants. Russian oculists and physicians say that the reason why so many of their countrymen are blind and so many others have defective eyesight is because insufficient attention is paid throughout the country to the ordinary laws of hygiene, and they maintain that Russians will continue to suffer in this way as long as they keep themselves and their homes in unhealthy condition.

J. A. PATTERSON quotes Risley on the location of pain in ocular maladies: "In optic nerve diseases, there is in many cases pain in the

front of the head, on top, but it is not a vertex pain. The pain, when associated with eye affections, occurs in the brow, occiput, back of the eyes, and in the temples, in point of frequency in the order named. Simple eye strain, particularly in children, will usually give rise to brow pain. If associated with some abnormality of the ocular balance, there will usually be occipital pain also." The diagnosis of muscular disabilities is as intricate as it is important, and requires very careful testing for the perception of all the minute features. In making pupillary examinations the physician should notice whether the pupil reacts to light stimulus promptly, sluggishly, or not at all. The ophthalmoscope is an invaluable adjunct in the diagnosis of ocular maladies.—*International Medical Magazine, February, 1900.*

ON THE ABORTIVE TREATMENT OF SUPPURATION OF THE EYEBALL.—S. Snell counsels the following procedure: Ether having been administered, the cornea, unless it is already destroyed, is divided across by a cataract or Beer's knife. The next step is to remove the remains of the cornea up to the sclerotic, and this can be well done with scissors. After removal, Mules' scoop may be used to aid further in the cleaning of the interior of the globe, or cotton-wool and forceps can be employed to wipe out the contents. Lastly, sublimate solution is freely syringed into the eye cavity until all the contents have been removed or washed away, and only the bared sclerotic remains. Gauze is lightly packed into the eyeball, and a bandage is applied. Almost immediate relief from pain follows the operation, with no return, and the swelling of the orbital tissues gradually subsides. The dressings are changed on the night of the operation, and during the next few days the eye is syringed twice a day, and the gauze is reapplied. For about the first three days there is some discharge; after that practically none.

REMARKS ON HOLMGREN WOOL TEST. IS IT ADEQUATE FOR DETECTION OF COLOR BLINDNESS? — Thomas H. Bickerton — While at first thoroughly believing in the Holmgren test for color blindness, Bickerton has of late become less a believer in its all-sufficiency, and he reports a case where the mate of a steamer, suffering from a dangerous form of color blindness, was able to pass these tests with ease. He thinks that the Holmgren test is by no means a certain discoverer of the lesser marked forms of color blindness. That there should be a phase of physical infirmity such as he has described rather strongly indicates that

color and luminosity are in some way or other immediately associated, and the person who loses the ability to discriminate between colors at a distance, but gains it at close quarters, certainly possesses a type of color disturbance which the Holmgren test will never discover. He quotes in support of his view Dr. Hubert Seager, Captain Abney, and Drs. Mackay and McGillivray. He thinks to insure a certain discovery of all color defects, a quantitative test for color is required in addition to this now used.—*British Med. Journal*.

PRACTICAL APPLICATION OF LARGIN IN DISEASES OF THE EYE.—Sydney Stephenson—Largin, a new silver preparation, said by Merck to contain 11.1 per cent of silver combined with protalbin, has been tested by Stephenson in several cases, and he concludes as follows as to its value: The application of largin, even in concentrated form, is painless, but when prolonged beyond a few weeks may stain the conjunctiva. It acts well in blepharo-conjunctivitis, and in some cases of dacryo-cystitis. It is an efficient substitute for silver nitrate in any of the conjunctival inflammations associated with the Koch-Weeks bacillus, such as infectious ophthalmia and acute or subacute trachoma. It acts admirably as a temporary remedy after any of the operations commonly practiced for the relief of chronic trachoma. In gonorrheal ophthalmia, on the contrary, it is, in his experience, distinctly inferior both to protargol and to silver nitrate. In diplo-bacillary conjunctivitis, too, it does not succeed as well as zinc sulphate. In short, largin seems likely to gain a permanent place among the somewhat restricted number of remedies employed in everyday eye work.—*British Medical Journal*.

MORE than sixty judges of the courts of justice in Budapesth have lately occupied themselves with a thorough study of the Röntgen discovery and its practical applicability in judicial proceedings. Professor Dr. Carl Kiss, of the Röntgen laboratory, assisted by explaining the Röntgen theory and the method by which skiographs are taken, and by supplying them with material bearing on the subject and with numerous skiographs.

Quite interesting is the case of a mechanic who had been shot during a general fight. As he felt no pain and the shot wound soon healed up he made no public complaint. Only when he began to feel an acutely painful sensation in the socket of his eye, and soon afterward grew blind, the matter came to a legal investigation.

The counsel for the perpetrator pleaded at court that the scar was not the result of a shot wound, and that the man's blindness came from some other cause. By means of the Röntgen appliance, however, the shot and its precise location were found to be on the nerve of the sight. This evidence decided the question, and the lawsuit was at an end.

MYERS describes his method of treating granular disease by applying electricity to the supplying vessels of the granulation. He thinks this is the only method that will reduce the hypertrophies in the conjunctiva without injury to that membrane. The current required is a very weak one, but to insure steadiness, a battery of not less than thirty ordinary ammonia cells should be used. A reliable milliamperimeter is an absolute necessity. A current of $1\frac{1}{2}$ or 2 milliamperes is sufficient. The needle should be placed in the tissues, which must be well under the effects of cocain before contact with the positive pole is made. It must be kept in place until the effect of the electrolysis is evident by the escape from the sides of the needle of a white pasty mass. Three or four punctures should be made in each hypertrophy, but the number required depends entirely on the extent of the thickened tissue. In eight years he has never seen a reaction result which could alarm the most timid operator, and has made as many as twenty to thirty punctures at a single sitting many times. He has treated hundreds of cases by this method, and has almost altogether ceased to use copper and silver. He does not believe in the use of the flat electrodes on the granulations, as he has seen scar tissue result time and again from this practice.

BOOKS ARE INJURIOUS TO THE EYES.—F. G. Murphy, Kansas City, notes that the reading of books is injurious to the eyes in three ways: reading on a curved surface; one's inability to prevent light reflections from entering the eyes when reading from such a surface; and the long lines in most books, that run the entire width of the pages. The middle of the lines in most books is from an eighth of an inch to an inch nearer the eyes than the ends of the lines. This necessitates a constant effort on the part of the ciliary muscles to keep the letters in focus on the retina, while the muscles of convergence and divergence are more tiresome if the reader has not perfect binocular vision. A flat page, such as that of a newspaper, is always more easily read. As books are now made, it is almost impossible to prevent light reflections from entering the eyes. If

a newspaper is being read, it will not be necessary to have the light come so much from behind, as the entire sheet, which is more nearly flat, can be illuminated when the light is at either side without any part of it being shaded. The source of illumination being at the side, the light reflections necessarily pass to the opposite side of the reader's head. The width of the reading column has also much to do with tiring the ocular muscles. A column that is of less width than the pupillary distance is certainly more easily read than one that is wider.

VALUE OF MECHANICAL METHODS IN THE TREATMENT OF TRACHOMA—PROFESSOR KUHNT.—Professor Kuhnt's observations were made in Königsberg, where the disease is epidemic in character, a very large proportion of the whole community being afflicted. Under mechanical methods are understood especially expression and kindred measures for the removal of the characteristic granules without great wounding or sacrifice of the tissues. The writer uses for this purpose a forceps armed with two flat perforated metal plates, between which the granular tissue is pressed. This instrument is said to as effectually remove the granulations, and, at the same time, produce less traumatism than such instruments as those of Knapp, Noyes, Prince, etc. Even cases with distinct granulation, where the patient can be made to follow rules of cleanliness and otherwise be protected against reinfection, a good result may be expected. In epidemic regions among the lower classes, however, a recurrence of the disease is the rule, and in these cases the writer believes that excision of the fold of transition should be practiced, as giving the only chance of future immunity. About 50 per cent of such cases show no return, although necessarily exposed continually to reinfection.—*Zeitschrift für Augenheilkunde*.

IN a homeopathic periodical of recent date appears the following professional card:

JOHN JONES, M.D.,
Oculist and Orificialist,
Wayback, Massachusetts.

Whatever else may be said about our homeopathic colleagues, certainly no one can deny their progressive spirit in their commendable search for medical novelties. The modest but noticeable card of Dr. Jones is a new evidence of this undaunted professional determination, for he launches upon the field of medicine an entirely new specialty, one

it must be conceded never even dreamed of by the less talented members of the regular school. His spirit is evidently too bold, and his knowledge too extensive to be circumscribed in the narrow field of merely one orifice; he treats them all; he is equally at home in the mouth (figuratively speaking, of course), nose, ear, vagina, urethra or rectum, to say nothing about the eye, which is evidently his leading card, as it were, for he mentions the eye specifically, while the other orifices he simply refers to in a general classification. We do not know at the present time whether he also includes the orifices of the sweat glands or not, but we presume he would not allow several million of these little orifices to pass unnoticed. It would appear that in a specialty as boundless as that of orificialism, extending, as it were, at a jump from the eye to the rectum, there should be no difficulty whatever in making both ends meet, and we certainly congratulate Dr. Jones on his wonderful innovation into modern methods of medical practice.

GATHERING our information from the public press we are told that Dr. S. J. Jones, the eminent ophthalmologist, is having a rather hard time in endeavoring to suppress unnecessary noises in the city of Chicago. It seems that the clanging of bells, crying of newspapers, melodies of hand organs, shrieking of whistles, and the other exhilarating sounds of a great city, are displeasing to the advocates of the anti-noise movement, of which the doctor seems to be the leading spirit. The papers say that he has hopefully but hopelessly migrated from one point of the city to the other in quest of a quiet spot where he might permanently abide, and secure emancipation from those harrowing sounds, tending to disturb an otherwise placid nervous system. We sympathize with the doctor, and sincerely trust that he may be successful in his campaign. The papers say that the police department has been somewhat placed at his disposal, and that his house is patrolled by policemen with rubber-soled shoes, and that not long ago a gentleman wearing a loud vest was stopped by the guard, and compelled to desist from walking in plain sight of the doctor's residence, and continue his journey by way of an adjoining alley.

We advise our clarion-toned friend, Dr. Dudley Reynolds, of Louisville, to keep away from Chicago at the present time. The papers say that Dr. Jones is firmly determined to secure a quiet spot upon this earth, even if he has to remove from Chicago to Philadelphia.

KRAUSS writes on catarrhal disorders of the conjunctiva, which are easily managed, and ophthalmia neonatorum, which is a more serious

condition. Its treatment is, first of all, absolute cleanliness, and, by way of prophylaxis, the vaginal tract should be thoroughly cleansed with a 1 to 1,000 bichlorid solution before labor is advanced. Later, solutions of 1 to 10,000 may be used to keep the tract clean. Immediately after birth, the exterior of the child's eye should be carefully cleansed with a weak bichlorid solution, which should later also be used in cleansing the whole body of the child. The conjunctival cul-de-sac should be thoroughly cleansed with a saturated solution of boric acid, freely applied by the physician. After thorough cleansing, one or two drops of nitrate of silver should be dropped into the eye. It is essential to keep the pupil free from pus, and the lids should be separated every half hour to allow its escape, and there should be free instillation of boric acid. Ice compresses should be used and Krauss employs a two-grain atropin solution whenever the cornea is slightly hazy, and one twice that strength if the severe complication appears. If the destruction of tissue has not been too great, the everted lids are painted daily with a 2 per cent nitrate of silver solution, as soon as the discharge becomes purulent, the excess being removed with boric acid or normal salt solution. A weak solution of potassium permanganate may be freely used, especially in the early stages.

TO COUNT BLIND CHILDREN.—New method Adopted for Learning Number in Chicago.—Steps to ascertain the number of blind children in Chicago by other means than the school census have been taken by President Harris, of the Board of Education, and Superintendent Andrews. The principals and teachers have been asked to assist the board in securing this information for the benefit of the buildings and grounds committee, which is taking up the question of erecting a school for the blind. Teachers have been called upon to ask their pupils if they know of blind children, and, if so, where they are. The bulletin issued by Superintendent Andrews is as follows:

"The committee on buildings and grounds of the Board of Education in providing a school for blind children needs better information than now exists as to the approximate number of such children at present in this city, and cannot wait for the census. The president of the Board of Education therefore directs that you ascertain as nearly as possible from the children in your school the names and residences, if possible without loss of time, of any and all blind children living in this city. If so, give the names and addresses as nearly as you can. Gather these names and addresses together, and forward them at once.

"E. BENJAMIN ANDREWS."

By this means it is expected more exact information will be secured than from the census figures, which were obtained by the canvassers with great difficulty. It is expected it will be found that there are several hundred blind children in Chicago.

IN the December number of the *Scottish Medical and Surgical Journal* Dr. George Mackey and Dr. J. C. Dunlap, of Edinburgh, publish a full description of the cerebral lesions observed in an instance of complete acquired color-blindness, achromatic vision being at the same time retained. They believe this to be the first complete case of the kind that has been submitted to post mortem examination. The patient was sixty-two years old. Good mind and color sense. In 1896 became anæmic. Vision became affected November 24, 1897. Could not read his mail nor distinguish vivid colors. Dunlap examined him December 23, and found *complete* color-blindness. Form vision good. January 26, 1898, form vision still good. Discs senile and anæmic, but not atrophied. Color vision as before. April 17, right-sided hemiplegia. April 22, died.

Post Mortem.—Atrophy of posterior part of temporo-occipital convolution, on both sides, extending on left side to floor of lateral ventricle, and gray substance of calcarine tissue. On both sides lower edge of optic radiation affected. The nature of atrophy was due to hyaline degeneration of adventitia of vessels, which had to great extent cut off blood supply, and had led to complete destruction of the proper nerve elements, both fibers and cells, of the affected portions of the brain. Mackey and Dunlap believe that the total loss of color sense being associated with a bilateral lesion of the fusiform convolution, so well defined and symmetrical, it becomes difficult to avoid the conclusion that the gray matter of that convolution is probably concerned in the perception of colors. Verrey, in the *Archives d'Ophtalmologie* xvii, 1888, p. 289, has recorded a comparable case of acquired one-sided color-blindness, examined post mortem.

NEW YORK NEUROLOGICAL SOCIETY.—Annual meeting, New York City, January 2, 1900; Facial and Retrobulbar Neuritis; Periostitis of Optic Canal: Dr. William M. Leszynsky presented a woman of 38 years, who first came to him October 11, 1898. There was then a complete facial paralysis of the left side of five weeks' duration. There had been a loss of taste, but the eyes had remained normal. Severe pain and tinnitus in the left ear, lasting several days, preceded the facial paralysis.

Galvanism had been used in the usual manner. Two months later, while under treatment, she complained of severe pain in the left supraorbital and left temporal regions. This pain was continuous for over a week, when she became totally blind in the left eye. The pupil was absolutely immovable, and the ophthalmoscope showed edema of the papilla, but nothing else. Within a week a well-marked papillitis could be detected in the left eye. The vision in the right eye was normal. Under mercurial inunctions, and iodid of potassium internally, the vision improved somewhat, and on November 4, in the right eye, was 22/100. She now had optic atrophy, but the vision had decreased. The faradic irritability had returned, but was still below the normal. A diagnosis of facial neuritis and a retrobulbar neuritis arising from periostitis in the optic canal had been made—a very unusual condition. Dr. de Schweinitz, Philadelphia, recently reported two or three such cases, but in them the retrobulbar paralysis had developed nearly a year and a half after the neuritis. The case always showed that a return of faradic irritability did not necessarily mean a return of motility.

Dr. G. M. Hammond asked whether uremia could be absolutely excluded in the case presented.

Dr. Leszynsky said that a complete absence of all urinary signs and symptoms had been noted. The neuritis seemed either of rheumatic or syphilitic origin. There were some elements in the case that had led him to think it possibly of syphilitic origin.

W. T. GEORGEN, optician, of 32 East Twenty-third Street, New York City, is a gentleman who evidently has a proper conception of the function of an optician, and is not afraid to say so in the public press. He advertises extensively in the New York papers with such startling headlines as these:

CRIMINAL MALPRACTICE ON EYES.

STARTLING APATHY WHICH CONDONES MALTREATMENT OF EYESIGHT.

WHY SACRIFICE THE PRECIOUS ORGANS OF VISION ON THE ALTAR OF INCOMPETENCE?

ONLY OCULISTS ARE COMPETENT TO TEST EYES FOR EYEGLASSES AND SPECTACLES.

He does not hesitate to call it malpractice for opticians to fit glasses, and pertinently asks the question, what is an oculist, and answers it as follows: An oculist is a regularly graduated doctor of medicine who makes a specialty of treating eyes. He also asks the question, what is an optician, and answers the question by saying that an optician is the

manufacturer of optical goods in which the lens is the principal factor. The optician, however, he says, has no right to diagnose the pathological conditions of the eye, which lies in the province of the oculist. The optician should prepare glasses or spectacles in conformity to the oculist's prescription, and if he assumes to examine and treat the eyesight, he is committing a severe crime against humanity, even if it is not a statutory crime. Mr. Georgen absolutely refuses to put up any glasses whatever in his store except upon the order of a physician. He is indorsed by such high authority as Drs. E. Gruening and C. H. May and others. This is certainly something of a new departure, and while it may seem a little startling at first, it requires something of a positive nature to produce a new sensation along these lines. Mr. Georgen is undoubtedly not doing this work for the sake of humanity. He doubtless expects to make it pay, but he is certainly looking for profits along the proper channels.

NOTIFICATION OF OPTHALMIA NEONATORUM.—F. Antill Pockley, M. D. (*Australasian Medical Gazette*, 1899, xvii, 372), says: There being no apparent likelihood of the practice of midwives being regulated, it occurred to me that the difficulty might to some extent be overcome by including ophthalmia neonatorum in the list of diseases compulsorily notifiable. On my broaching the matter to the President of the Board of Health he suggested that I should bring it up at a meeting of the British Medical Association for an expression of opinion. It appears that the present machinery is inadequate for the carrying out of the necessary details, but I understand that if a recommendation came from the British Medical Association to adopt the course named, it would doubtless be arranged.

My suggestion is that it should be made compulsory for the parents, householders, midwife, one and all, to report immediately to the local authority every case of discharging eyes in a new-born baby. In most European countries, and most of the States of America, this is compulsory. In Germany, in addition to being compelled to notify, the midwife is forbidden to treat these cases. Slow-going Great Britain has not yet moved in these matters, but even there the profession recognizes the duty of doing something, and it is a common practice for notices to be distributed by infirmaries and dispensaries in something like the following terms, which is the formula of the Sheffield General Infirmary:

“When the baby's eyes begin to look red and to run matter, take it at once to a doctor. It is very dangerous, and unless treated properly one or both eyes may be lost.”

There would be no popular objection to compulsory notification. It has to be admitted that cases are not always of gonorrheal origin. The serious results are due to ignorance. That mothers would be only too ready to have such a simple way of saving themselves from the reproach of having by neglect allowed their children to go blind is proved by the anxiety they show and the trouble they will go to to have the disease treated when once they comprehend its dangers.

As to the procedure after notification, that would be a matter for the authorities to arrange and is beyond my province to suggest.

HIGH MYOPIA.—From a review of the more important literature of the past few years, Bull concludes that the most careful and conservative authorities all advocate the operation of removal of the lens in high myopia in selected cases and under wise restrictions. Therefore, in all it is important to study the case and definitely determine the condition of the myopic eye; also to take into consideration the age and occupation of the patient and the demands made on his vision. The intraocular tension should also be carefully examined, as it is apt to be above normal, and a minus tension would arouse suspicion of serious disease of the fundus. The possible dangers from the operation are, in order of their importance and frequency, intraocular hemorrhage, detachment of the retina, secondary glaucomatous symptoms, and infection of the corneal wound of the iris. The third danger is not serious, as the tension is relieved by extraction of the swollen lens, and the danger of infection is also reduced to a minimum by modern methods. A possible complication is anterior synechia at the point of entrance of the needle, but this should not occur if atropin is properly employed. Another possible complication is incarceration of the iris in the corneal wound or prolapse through the wound. The contraindications are: 1. Extensive degenerative changes in the retina and choroid. 2. Existing detachment of the retina. 3. Membranous opacities in the vitreous, indicating disease of the choroid and vessels. 4. Previous loss of one eye from any cause. 5. Loss of transparency of the cornea from previous inflammation. 6. Any form of contagious conjunctivitis, especially trachoma. 7. Advanced age of the patient. 8. A myopia of less than D. 12. The indications are: 1. If the central vision of the myopic patient, with the best possible correction by glasses, is not sufficient for the needs and social position of the patient, the operation is indicated, first on one eye and then on the other, if no contraindications exist. 2. If there are unmistakable evidences

of a rapid increase in the amount of near-sightedness, true progressive myopia, and if the myopias D. 12 or more, the operation may be done, under the previously mentioned restrictions. He believes there is no reasonable doubt that the removal causes decided improvement of vision, and the wearing of moderate convex glasses after the operation is much less annoying than the wearing of strong concave ones before. He describes the technique in detail.—*Medical News*, Jan. 20, 1900.

BRITONS SEE BETTER THAN WE.—An optician says the strong sunlight here hurts the eyes. "There are more people with defective eyesight in the cities of this country than you will find in Great Britain or Ireland," said the naturalized New Yorker who served in the British army when he was a very young man and who is now an optician. "I do not judge by the number of people who wear glasses here, as in American cities glasses are worn if there is the slightest trace of nearsightedness, while few persons wear glasses for this cause in the old country unless they are so nearsighted that the wearing of glasses is a positive necessity. But, taking it on the whole, there are more people here whose eyesight begins to fail at a comparatively earlier age than in England, Ireland or Scotland, and fewer people who have exceptionally keen eyesight.

"In the British army you will find a dozen men with exceptionally good eyesight for one you will find in the American army, and I know a good many soldiers in this country. I once knew a private of the First Leicester regiment who has since been killed in the fighting near Ladysmith. This man had such keen sight that he could tell the time by a church clock at a distance of several miles, yet, strange to relate, he could not read very small print in a book. I also knew a man in one of the Lancer patrols who had wonderful eyesight. In the Transvaal long ago what appeared to his watchful chums one day as a mass of veldt heather, dim and blurred in the distance, was seen by him as an ambuscade cunningly concealed and bristling with Boer riflemen. His splendid sight on that occasion saved him and his comrades an unpleasant surprise.

"I have heard of American soldiers who are sharp-sighted, but, as I said before, their number is much smaller in proportion than in the British army. One of these Americans is a man named Cullen, who can see objects clearly at a distance of twelve miles. During the Spanish-American war Cullen, who is an artilleryman, aided his battery very materially in sighting the guns for long ranges, and always by his vision.

"I account for the standard of eyesight being better in the old country than here principally because of the gray skies there. There are so few sunny days in Great Britain and Ireland that the eyes are not subjected to the same strain as in this country, where there is a far greater proportion of sunny days, and the sun's rays are more vertical than in more northerly countries. The glare has undoubtedly much to do with bringing about the decay of the eyesight at an early age. Another reason is the nervous temperament of Americans. The optic nerve is very delicate and responds quickly to any strain on the nervous system."—*New York Sun*.

OPHTHALMIC SECTION INTERNATIONAL MEDICAL CONGRESS.—The officers of the Section on Ophthalmology of the XIII International Medical Congress, to be held in Paris August 2 to 9, 1900, are (we learn through a circular recently issued through the secretary): President, Panas (Paris); vice-presidents, Javal (Paris) and Gayet, (Lyons). The secretary is Dr. Parent (Avenue de l'Opera, 26, Paris), and the assistants are Chevallereau (Paris), and Rochon, Duvigneaud (Paris). The principal subjects (in the form of reports) for general discussion are: (1) Optic Neuritis of Infective and Toxic Origin, introduced by Nuel (Liege) and Uhthoff (Breslau). (2) The Cortical Center for Vision, introduced by Bernheimer (Vienna), Angelucci (Palermo), and Henschen (Upsala). (3) The Comparative Value of Enucleation and its Substitutes, introduced by Snellen (Utrecht), Swanzy (Dublin), de Schweinitz (Philadelphia), and Pflueger (Berne). (4) The Present State of Our Knowledge of the Mechanism of Accommodation, introduced by Hess (Marburg). (5) Reforms in the Methods of Noting the Visual Acuity, by Jarval (Paris). (6) Glaucoma Following Cataract Extraction, B. Wicherkiewicz (Cracon). (7) The Preliminary and Post-Operative Treatment of Cataract, by Schiotz (Christiania). These reports will be printed in French and distributed in advance to those members who have registered before the meeting. A résumé only of each will be read at the sectional sessions, after which a discussion of the whole paper will be in order. Members desiring to participate in these discussions are requested, after reading the reports, to prepare their discussions in advance, so that they may be published as soon as possible. Any paper touching the subjects of these reports will be considered as forming part of the discussion, and so treated. A member intending to contribute a paper on any other subject will send the secretary, at the earliest possible date, the title of his communication. If the entire paper be sent before the first of July, it will be

placed first on the list. With it should be mailed a short abstract in at least two languages, German and French or English and French. Keeping in mind the probable large number of papers, contributors are expected to be as brief as possible.

The secretaries of the Section, who are conversant with French, German and English, will give an exact account of the sessions. This résumé will be printed during the night and published the following morning in the "Journal of the Congress." The meetings will be held in the Hotel Dieu, Place Parvis, Notre Dame. Here will be found rooms reserved for views, microscopical demonstrations and for a display of instruments. Intending members will send a visiting card to the secretary of their national committee, enclosing the subscription (America, Dr. Henry B. Jacobs, 3 W. Franklin St., Baltimore, Md., five dollars), who will return a card of admission.

THE OPHTHALMIC RECORD

*A MONTHLY REVIEW OF THE PROGRESS OF
OPHTHALMOLOGY.*

VOLUME IX.

CHICAGO, JUNE, 1900.

NO. 6. NEW SERIES

ORIGINAL ARTICLES.

PLASTIC RESTORATION OF THE ORBIT AND LIDS FOR
PROTHESIS—EXTENSIVE TRAUMATIC ECTROPION
AND CICATRICIAL CONTRACTION OF THE OR-
BITAL TISSUES CURED BY WOLFF AND
THIERSCH GRAFTS FROM THE SKIN
OF THE ARM AND MUCOUS MEM-
BRANE OF THE LIP.

BY H. V. WÜRDEMANN, M.D.

MILWAUKEE, WIS.

(Ophthalmic and Aural Surgeon to the Milwaukee Children's Hospital and to the Milwaukee County
Hospital for the Chronic Insane, Managing Editor *Annals of Ophthalmology*, Associate
Editor *OPHTHALMIC RECORD*, Chairman Section on Ophthalmology
American Medical Association, 1900, etc., etc.)

Illustrated.

Opportunities for any great number of plastic operations of a radical character are not afforded the average ophthalmic surgeon, no matter how extensive his practice. There is nothing particularly novel in the treatment of the case here appended, but the accident was unusual and its effects so severe, and the results obtained by the series of operative procedures made for its relief were sufficiently satisfactory to encourage transplantation of large skin grafts from other parts of the body to the face, with expectation of perfect healing, that I am constrained to report the case.

February 24, 1899, W. W. N., æt. 43, of Florence, Wis., was referred to me by Dr. C. R. Elwood, of Menominee, Mich. He stated that while sawing lumber in a mill with a steam band-saw, a large heavy sliver, a couple of feet long, from the slab that he was cutting flew off, piercing his lower lid, cutting his eye open, and passing through his face back as far as the throat. It was withdrawn by his own hands immediately after the accident, after which he fainted from loss of blood, which was stopped by a local practitioner, and a bandage applied. He went to Dr. Elwood November 17, 1898, the day after the accident, who, under date of February 22, 1899, wrote me:

"The lower lid was torn away, and the upper lid and forehead badly cut. The eye was much inflamed, and vision limited to very poor form perception. The nasal mucous membrane was lacerated and inflamed, and the third day he expelled from the naso-pharynx a triangular piece of bone 20x10x10 mm., which I think was from the internal angle of the orbital portion of the superior maxilla.

"A portion of wood was driven into the fragment of bone, and later the patient expelled another piece of wood from the throat. Treatment was expectant. Patient in bed, atropin, ice-cold boric acid compresses and iodoform dressing for lid wound. Suppuration of wound into nose was such as to prohibit attempts at skin grafting. Inflammation of nasal mucous membrane also treated.

"He went home in about a month; the wound was then in much the condition as now (except granulation buttons), and the cornea was clear. Home physician was asked to continue atropin and boric compresses, and the patient directed to return as soon as possible to see what could be done to restore the lid."

He returned to Dr. Elwood February 22, 1899, and was then referred to me for operation.

February 24, 1899, on examination, appearances were similar to those shown in Fig. 1.

The right eye and side of face was normal. In the left there was a distinct scar above at the root of nose and eyebrow; the upper lid was scarred, while the lower lid and cheek presented a ghastly appearance on account of cicatricial healing of the wound, which had caused decided ectropion and obliteration of the tear duct. Palpation showed that the orbital process of the frontal bone, the nasal bones and nasal process of the upper jaw had been fractured; there was extensive symblepharon, both eyelids being adherent to the ball; the vision of this eye was only for perception of light; the cornea about the wound entrance in the



FIG. 1. Extensive Cicatricial Contraction of Orbital Tissues and Traumatic Ectropion. Feb. 24, 1899.



FIG. 3. Appearance of patient when discharged, December 15, 1899.

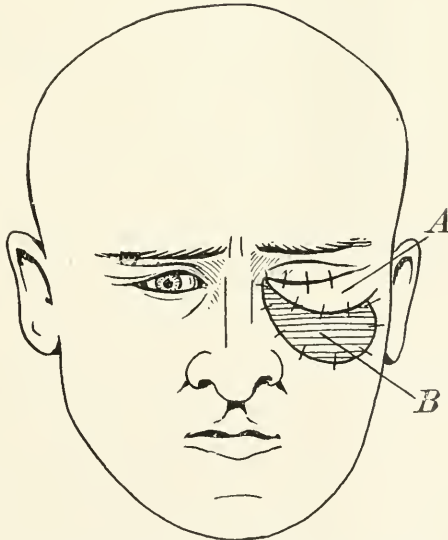


FIG. 2. Diagram Illustrating Operation for Plastic Restoration of Orbit and Lower Eyelid.
A. Skin flap taken from cheek. B. Skin graft (Wolff) taken from arm.

inferior nasal quadrant was opaque; the eyeball was inflamed, painful and tender on pressure, and presented the usual appearance of traumatic iridocyclitis. The expression of the patient's face at this time is indicative of pain, which he must have had. This is evident in the photograph. Rhinoscopic examination showed the right side practically normal, while the left was almost occluded by an hypertrophied turbinal body, and there was a purulent discharge on this side, evidently proceeding from the ethmoidal sinuses. Enucleation was advised, not only as a preliminary step for the restoration of his previous comely appearance, but it was strongly indicated on account of the traumatic iridocyclitis and danger of sympathetic inflammation to the other eye.

February 25, 1899, operation at Milwaukee Hospital, with the assistance of Dr. W. R. Murray. Under ether anesthesia the eye was enucleated, having to be dissected out, as there were many adhesions of the lids to the eyeball, and firm adhesion to the inner and inferior walls of the orbital cavity. No attempt at plastic procedures was made at this time, it being deemed best to wait until cicatricial contraction was complete. Examination of the enucleated specimen shows an irregular and somewhat contracted eyeball, cornea opaque, the ciliary region and iris disorganized and totally adherent to the posterior layer of the cornea, the lens practically absorbed, considerable exudate about the ciliary body; posterior region of the eyeball, retina, choroid and nerve macroscopically normal; the usual conditions found in traumatic iridocyclitis from injury to the ciliary region. The nose was treated by simple Seiler's solution wash, under which it rapidly improved.

March 7, 1899, under chloroform anesthesia, the cicatricial bands in the orbit were loosened, and Thiersch grafts were taken from the forearm to line the raw surface, which was about an inch square. These took well, and the patient went home one week later.

November 23, 1899, he returned for completion of plastic work. Under chloroform anesthesia, with Dr. Nelson M. Black, I loosened the the lower lid from the inferior margin of the orbit to which it was adherent, by an incision reaching from the inner to outer canthus, dissecting loose a large oblong flap from the cheek with its base attached to the temple, and bringing this upward with the loosened lid. The lid was likewise loosened from cicatricial tissue on the conjunctival surface, a raw surface being left, which was filled in by an elliptical piece of mucous membrane taken from the lower lip about the size of the palmar surface of the first phalanx of a man's thumb, it adhering readily, requiring no suture. A canthoplasty was done to enlarge the palpebral fissure, and a

lead plate, prepared for the purpose, was placed in the orbital opening, and the upper and lower lid sutured together with three temporary stitches, in order to hold the lower lid up; the large flap was then sutured to the lower lid. The space for which this large flap was taken was filled in with a large Wolff graft from the forearm, about three inches long and one and a half inches wide. This was composed of the entire thickness of the skin, the under surface of which was carefully denuded of areolar and fatty tissue, and its vitality preserved by being kept in apposition with the bleeding surface of the forearm, and afterward with the raw surface of the cheek. This was carefully stitched by a dozen or more sutures to the edges of the skin, which at the lower portion of the cheek was loosened. The patient was $1\frac{1}{2}$ hours on the operating table. Dressing was done with normal salt solution and rubber tissue, the bandages left undisturbed for three days. When redressed the three flaps were found adherent to the underlying surfaces. Five days after the operation, the temporary stitches, mentioned above as being inserted in the upper and lower lids, were divided and the lead plate removed; the transplanted mucous membrane was found to have taken well. An artificial eye-shell, as large as could be inserted, was put in place of the lead plate, and after this time the case was dressed daily. With the exception of a peculiar appearance of the Wolff graft, the outer surface of which became a dry and hard scab, there was nothing eventful in the healing, which was by first intention. December, 1899, the patient was fitted with an artificial eye, at which time the photograph, Fig. 3, was taken.

When he returned home. December 15, there was a small dry scab at the inner angle of the Wolff graft; he was enabled to wear the artificial eye, his appearance being greatly improved by the operations.

128 Wisconsin St.

A CASE OF MICROPHAKIA.

BY H. O. REIK, M.D.

Assistant in Ophthalmology and Otology, Johns Hopkins University.
BALTIMORE, MD.

On December 15, 1896. Dr. W. T. Watson asked me to examine the eyes of a patient, then under treatment for rachitis, in whom he had noticed a peculiar tremulous condition of the iris.

The patient, Katie G., eight months old, was badly developed and poorly nourished, the arms and legs being puny and carrying but little

flesh. The head was of the dolichocephalic type, extremely long, with a low flat forehead. The sagittal suture was still open and the anterior fontanelle, which was very large, showed a distinct pulsation.

At first glance the staring eyes looked abnormally large, but closer inspection proved that this impression was due to the size of the cornea only, which attracted attention at once because it occupied nearly all of the visible portion of the globe, only a small area of the sclera showing at either canthus; the total length of the palpebral fissure being 24 mm. and the horizontal diameter of the cornea 15 mm. The pupil was 3 mm. in diameter, under moderate illumination, and the iris consequently very broad.

Whenever the eye made any sudden movements the iris became tremulous, and frequently a wave-like motion could be clearly seen spreading across it, always from the periphery towards the center and always ceasing just before reaching the pupillary margin. Reaction to light was perfect and the extra-ocular muscles appeared to be normal. A two-grain solution of atropine sulphate was ordered to be used three times that day, and Dr. Watson applied it twice himself. The child was examined again that evening, and though the constitutional effect of atropine was evident, mydriasis was not as great as had been hoped for.

The dilated pupil measured only 8 mm., but permitted a satisfactory examination. The lens could be distinctly outlined in its proper central position by the golden yellow reflex upon its margin. It was visible in its entirety, being somewhat smaller than the dilated pupillary area, and the zonule could be traced for a short distance towards the ciliary body, until it was lost behind the iris. The child was very restless and rendered an ophthalmoscopic examination quite difficult, but as far as could be determined, the fundus was normal.

The patient was the youngest child in a family of eight, all the other children having approximately normal eyes, except one who had a high grade of hypermetropia with convergent strabismus of the left eye. The ancestral history is of some interest, even though it may have no direct bearing upon this case. The father had been blind in the right eye since five years of age, when he passed through a severe illness that was attended by frequent spasms. The ophthalmoscope showed a well marked post-neuritic atrophy; the disc a dead white, except for a small area of bluish gray tint on the nasal side, its margin sharply defined and the vessels very much diminished in caliber. Near the upper and lower margin on the nerve head were several small opalescent spots. Each eye was hypermetropic about three diopters. His brothers and sisters, so far as

he knew, had good eyes, but his mother had been blind in one eye for a good many years. She was dead, and very little trustworthy information concerning her blindness could be obtained, but the family attributed her loss of sight to the use of large quantities of quinine which she had taken habitually for the prevention of neuralgia.

At the time I saw the child Dr. Watson was treating her for rachitis and thought the prognosis rather favorable, so I hoped to be able to watch the course of development, with special reference, of course, to the eyes, but unfortunately, though the little patient seemed to make some gain for a time, she continued weak and delicate, had a prolonged attack of bronchitis, and finally died of meningitis in January, 1898, thirteen months after I saw her.

I have not attempted an exhaustive search of the literature for reports of similar cases, but that they must be very infrequent is suggested by the fact that no mention of the subject is made in the text-books of Fuchs, de Schweinitz, Schmidt-Rimpler, Swanzy or Nettleship, and Dr. Norris, in his article on diseases of the lens, in the fourth volume of Norris and Oliver's system, gives but two references to instances of this condition, as follows: "Hartridge gives an interesting account of such small but well formed and transparent lenses existing in both eyes of a brother and sister. The eyes were highly myopic, and when the pupil was dilated by atropia and examined with the ophthalmoscope a considerable space was seen to intervene between the pupillary margin of the iris and the periphery of the lens. Mitvalsky also relates two such cases. In one of these the horizontal diameter of the cornea measured 12 mm., while after extraction the partially opaque lens measured only 7 mm. equatorially, by 4.5 mm. in the antero-posterior diameter. Such microphakic lenses are usually fairly well shaped, although perhaps more globular than usual."

CYSTOID CICATRIZATION FOLLOWING CATARACT EXTRACTION, WITH PERIODICAL ESCAPE OF AQUEOUS; REPORT OF CASE.*

BY DR. ALBERT E. BULSON, JR.

FT. WAYNE, IND.

Mr. H., aged 66 years, in excellent health, with mature senile cataract in the left eye, presented himself on September 5, 1899, and five days later was operated upon at Hope Hospital, linear extraction being per-

*Read before the March meeting of the Chicago Ophthalmological Society.

formed. The operation was without incident, no hemorrhage of any consequence following the iridectomy, the lens being easily removed and apparently no cortical substance remaining. The usual precautions were observed in looking for possible tags of iris, pieces of capsule, clots of blood, and beads of vitreous that might be present between the lips of the wound to prevent proper healing, and with the usual aseptic dressing, consisting of gauze pad and bandage over both eyes, the patient was put to bed in what was considered first-class condition.

The dressings were not disturbed for thirty-six hours, and the eye not inspected for seventy-two hours after the operation, when it was found that the wound had not completely closed and aqueous was escaping through a small opening near the center of the original wound. Except for the delayed union of the wound there were no untoward symptoms, and the dressings were reapplied, and maintained for a period of three days, at the end of which time inspection showed that the wound had apparently closed.

Ten days after the operation the patient was allowed to have the eye uncovered, though wearing a moderately smoked glass for protection from bright light. At this time there was no evidence of inflammation and the wound gave every indication of having closed properly.

Nearly four weeks after the operation I was asked to visit the patient and make an examination of the eye, the report being that "something had happened." Inspection of the eye disclosed a partially collapsed cornea, with escape of aqueous through a minute opening near the center of the site of the wound made for extraction of the lens. There was no assignable cause for the accident, nor could I obtain a history of trauma. Examination with a magnifying glass disclosed no prolapse of iris or capsule.

The wound was carefully touched with tincture of iodine and a pressure bandage applied. At the end of three days, when the bandage was removed, the wound appeared perfectly closed.

Four weeks later, or a little over two months after the original operation, there being no contraindication, glasses were adjusted and vision 20/40 obtained with $+9$ D.=C. $+2$ D., Axis 10° .

The patient then resumed his avocation, that of "night man" at the office of an omnibus and hack line, and experienced no inconvenience or discomfort pertaining to the eye until three months later, when he reported that while rubbing his eye something had "broken," allowing nearly a teaspoonful of clear liquid to run from the eye.

Inspection of the eye disclosed a small fistulous opening at the site of the former fistulous opening, with aqueous escaping upon slightest pres-

sure upon the cornea. As upon previous occasions, nothing could be seen protruding in the wound, though it was suspected that a remnant of capsule was probably responsible for the imperfect closure of the wound.

The lips of the wound were thoroughly rubbed with pure ichthyol and a bandage applied. At the end of five days the fistulous opening appeared perfectly closed, and there being no evidence of inflammation or irritation the patient was allowed to resume his regular work, but with due admonition regarding the liability of recurrence of trouble in consequence of trauma. From that time until this no indication of return of the trouble has put in an appearance, the eye is free from inflammation or irritation, and a test of the vision a few days ago shows that 20/40 is still maintained.

The interesting feature of the case is the fact that the fistulous opening has to all appearances perfectly closed on three occasions and remained so for a considerable length of time, only to burst open later. There has been no marked ectatic condition of the conjunctiva, nor could increase of intraocular tension be detected at any time either before or after the operation. There has at no time been any evidence of inflammation such as would likely occur if a tag of iris had been imprisoned in the wound, and very fortunately there has been no septic infection of the wound, though there has been ample opportunity for such a complication.

The question of recurrence of the trouble is one that time alone will settle, but if present indications may be judged the fistula is securely closed.

A COMBINATION SPONGE-GRAFT AND ARTIFICIAL GLOBE IMPLANTATION AFTER AN ENUCLEA- TION OF THE EYEBALL.

GEORGE F. SÜKER, M.D.

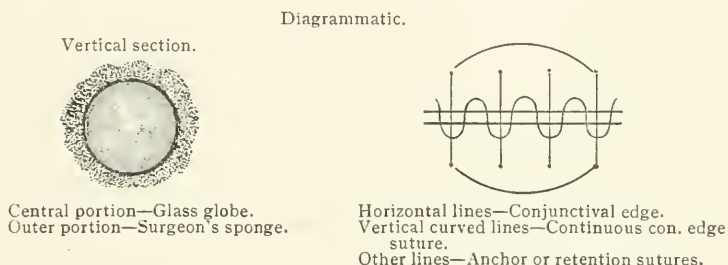
TOLEDO, OHIO.

Illustrated.

It is well known that there are many operations designed to give a satisfactory stump after an enucleation of the eyeball. Yet each and every one, though excellent in some cases, is not applicable in every case, nor does any one always yield the same result, i. e.: (1) Freedom from an irritable stump. (2) Efficient prominency of stump combined with mobility.

There seems to be almost a consensus of opinion that Mules's im-

plantation of an artificial globe into the eviscerated scleral cavity can be substituted for a simple enucleation wherever the latter is indicated. This opinion is held by the majority of American, and especially English, ophthalmic surgeons. However, despite this unanimity of opinion, the operations devised by Lang, Fox, Frost, Belt, and others have a field of applicability which cannot be fulfilled by the Mules. These operators implant an artificial ball of suitable size and shape into the emptied capsule of Tenon cavity. The only tangible objection to these latter operations is that it is next to an impossibility to insert a globe which will not have more or less motion; i. e., the capsule will not crowd down upon the globe and hold the same immobile. This certainly is a point which deserves due consideration. For, by not having an immobile artificial globe, a constant source of irritation is established by the fric-



tion resulting between the capsule and globe. This may account for the occasional discharge of the implanted globe. Nevertheless, a more stable, or rather immobile, implanted globe can be obtained by one of these operations than by the Mules. This inability to secure an accurate fit in the Mules operation is apparent to every operator. The so-called loose fitting of an artificial globe is very apparent after the insertion of the prosthesis by the few redundant folds of the conjunctiva of the stump. Then, too, it would be better if there could be a greater amount of tissue between the inserted globe and the shell. The thicker this so-called cushion the less liability of any irritation resulting, which might ultimately render the operation a partial or complete failure.

There is no question but that in selected cases any of these operations, when well performed, yield gratifying results. Still, the points raised above hold true in each and every operation.

Belt's method of implanting a surgeon's sponge into the emptied Tenon's capsule produces a good stump. But this stump, consisting as it does of granulation tissue, is bound to shrink to a certain extent, and

thus nullify the good results which are so noticeable immediately after the operation. This has reference to the absorption of the sponge. For the shrinking of the stump is often not complete till a year or so has elapsed. The shrinking is the main objection to the Belts method of operating, as the ultimate results are but little better than those apparent after a well performed simple enucleation. The second objectionable feature is the time required before complete absorption of the sponge has taken place. These two factors we must bear in mind when it is decided to implant a sponge instead of an artificial globe into the capsule cavity.

Belt's operation no doubt gives an excellent stump for the employment of Snellen's new and improved artificial shell. It perhaps gives a better stump than any other modified enucleation where an artificial globe is not employed.

To overcome the objections raised in the first part of this subject, the writer has substituted the following operation. It is a modification, or rather a combination of Belt's and the others, excluding Mules'. Whether or not this same suggestion can be carried out in the Mules operation is a question. For, the sclera surely does not possess such a proclivity for the formation of granulation tissue as does the capsule of Tenon. Then, too, the amount of the sponge employed and the size of the globe would not be proportionate to the results required; i. e., the so-called cushion and the size of the stump.

This modification can be employed in all cases where any of the other operations are indicated. It is superior to Belt's sponge-graft in that it yields a stump of permanent size—very little, if any, shrinking takes place. The time for the absorption of the sponge is reduced to a minimum. It is preferable to the methods of Fox, Lang, Frost, Webster and others, in that it furnishes an immobile artificial globe, and a greater cushion for the shell to rest upon. This latter cushion reduces the chances for an irritation more or less chronic in its nature. Too little stress has heretofore been laid upon the mechanical irritation that ensues from an ill-fitting implanted artificial globe. To the writer this seems an important question, enucleation and some means ought to be devised whereby these objections can be eliminated.

The eyeball is removed as in the ordinary method, care being taken to save as much of the conjunctiva as possible. The recti muscles are severed as close to the eyeball as possible, and each provisionally anchored by a black silk suture. The cavity, after the eyeball has been removed, is completely evacuated, and any hemorrhage checked before the artificial

combination globe is inserted. Avoid using even the weakest solution of bichde. of mercury during the operation, but instead use a sterilized normal salt solution. This for the reason that the former agent is prone to attack the vitality of the tissues and cause more or less annoyance.

A suitable and sufficiently large artificial globe (of glass, silver, aluminum, etc.) properly sterilized is imbedded or wrapped up in a layer of very fine surgeon's sponge, likewise aseptic, and tied or sewed with catgut. This imbedded globe is inserted into the capsule cavity. The capsule is next sutured with catgut (chromacized). The recti muscles are now brought together in pairs, and the whole fixed by an annular ligature. The black silk sutures are now removed from the recti muscles. Next, the conjunctiva is brought over the muscles, and sutured with silk or catgut. It is best to employ two sets of sutures for the conjunctiva; a so-called edge suture and an anchor suture alternating. This anchor or retention suture is placed as far back as possible from the cut edge of the conjunctiva, in order to relieve any strain upon the continuous or interrupted edge suture.

It is best to place about four or five of these retention sutures. By this double set of sutures any chance for the gaping of the conjunctiva or tearing out of the edge sutures is entirely obviated. These retention sutures should be the last to be removed, it being advisable to leave them in for two or three days after the removal of the edge sutures.

The eye is now dressed with a dry dressing—gauze pad immersed in one part boric acid and four parts amyloform; and, if everything has been thoroughly aseptic during the operation, very little reaction or consequent suppuration supervenes. Above all things avoid using pressure bandages. It is advisable to employ an ice-bag for the first twenty-four to thirty-six hours. Great caution must be observed in preparing the sponge and globe, so as to have each thoroughly aseptic—especially is this true of the sponge.

If the operator chooses, he can leave either the nasal or temporal end of the conjunctival wound open and insert a fine gauze drain. Probably this would be a wise thing to do in such cases where one might have reason to expect suppuration from one cause or another. Ordinarily, however, no such drainage precaution is called for.

An artificial shell—the ordinary or Snellen's—can be inserted at the expiration of a month or six weeks. For, by this time complete absorption of the sponge has been obtained.

The points in favor of this modified artificial sponge-globe may be enumerated as follows:

- I. Less liability for the extrusion of the globe.
 - II. Almost absolute immobility of the inserted globe is insured.
 - III. The range of movement of the stump so obtained is just as great, if not greater, than by any other method.
 - IV. The inserted globe is more thoroughly protected from pressure of the shell than by the other operations on account of this so-called cushion.
 - V. The amount of shrinking in consequence of the granulation tissue necessary to absorb the sponge is very trifling.
 - VI. As to time, it takes but a trifle longer than a simple enucleation; this is due to the absorption process of the sponge.
 - VII. No more reaction follows than after an ordinary enucleation.
- 914 Jefferson Street.

A CASE OF FOREIGN BODY PASSING DIRECTLY
THROUGH THE EYE AND LODGING IN THE
FATTY TISSUE IN THE POSTERIOR PORTION
OF THE ORBIT — DISLOCATION OF
LENS — RECOVERY.

BY FRANK ALLPORT, M.D.

CHICAGO, ILL.

Illustrated.

Mr. L. L., age 27, boiler-maker for a railroad. March 28, 1900, was putting a patch on a boiler when a piece of hammer hit him in the right eye. He consulted the general surgeon of the road, who found a large opening through the sclera between the cornea and external canthus. The wound was horizontal with the axis of the eyeball, and extended from near the sclero-corneal junction as far toward the external canthus as could be seen. The eye was dressed, and in a few days was perfectly healed. I was requested to see the case April 1st. I found the wound as indicated in figure No. 1. The eye was not painful nor irritable. The ophthalmoscopic examination showed the lens very slightly dislocated down, in and back, and the fundus clearly showed the point of exit of the foreign body as shown in figure No. 2. At this point the choroid and retina were of course ruptured, and the white sclera was well pronounced in appearance. The skiagraph was taken by W. C. Fuchs, and the foreign body located in the posterior portion of the orbit outside of

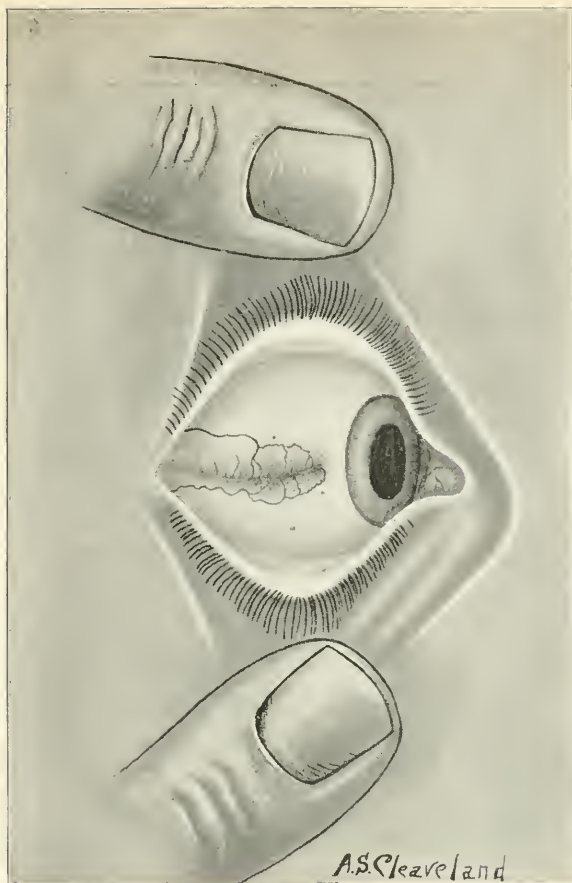


Fig. 1.

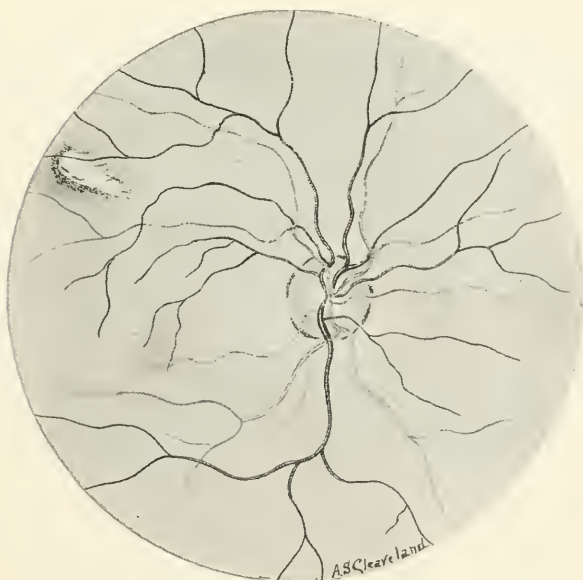


Fig. 2.



Fig. 3.

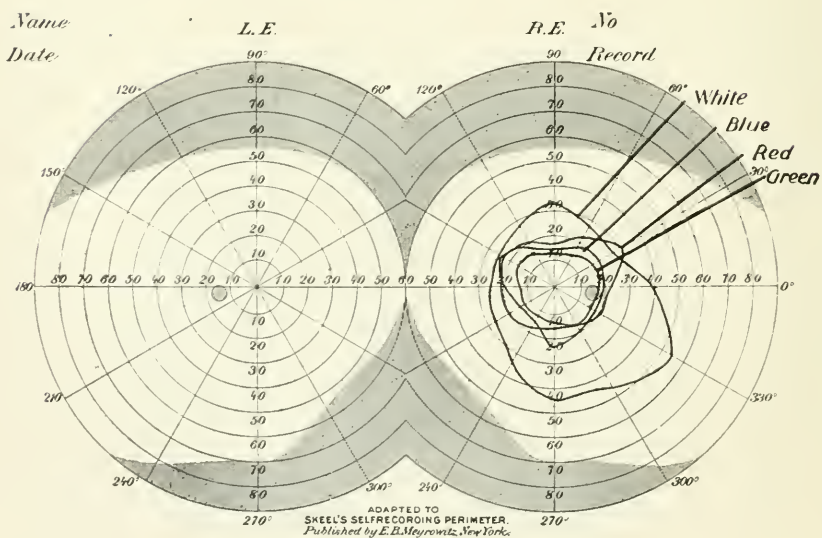


Fig. 4.

the ocular coats. His field of vision I present in figure No. 4. April 23d I found his vision in the injured eye to be 20/70. $+1.25$ sph. produced a vision of 20/30.

92 State St.

A REPORT OF CASES. 1. INTERSTITIAL KERATITIS IN ACQUIRED SYPHILIS. 2. LEAD DEPOSITS IN THE CORNEA, WITH VERIFICATION BY MECRO-CHEMICAL TESTS. 3. CILIA IN THE PUNCTA LACHRYMALIA.

E. C. ELLETT, M.D.

MEMPHIS, TENN.

I. INTERSTITIAL KERATITIS IN ACQUIRED SYPHILIS.—W. F. K., white, aged 49, a mate on a Mississippi River steamboat, came to me in June, 1899, with the history of a sore eye (right) for two weeks. On examination I found a semi-circular lesion on the cornea, with the base at the limbus, involving about one-third of the corneal area, and consisting of an infiltration of grayish color and moderate vascularization. There was no "salmon patch," but the lesion was a typical interstitial inflammation. The vision was 10/cc. He gave the following history. Twenty-three years before he had contracted syphilis, having a typical primary sore, and in due time a cutaneous eruption, adenopathy, alopecia and sore throat. An unusual point in the course of the disease was that the glands suppurated. Under internal treatment all of the symptoms disappeared, and he remained free from them until six years ago, when ulcerative lesions appeared on the skin of the face, neck and leg. *These lesions were confined to the right side*, and, as above noted, the right eye was affected. Under treatment these symptoms disappeared, but leaving scars, those on the face and neck being unpigmented and resembling somewhat the pitting left by smallpox. The scars on the leg were of the usual copper color.

He was given "mixed treatment" by a marine hospital surgeon, to which I added atropia locally. Later the internal treatment was suspended to permit the use of a yellow oxide of mercury ointment in the eye. On August 3 he saw 15/40 with O. D., on August 17, 15/30, the cornea clearing slowly but surely. On September 7 there was no trace of haziness to be found in the cornea, and the vision was 15/20.

Nuel (*System of Diseases of the Eye*, Norris and Oliver, Vol. IV, p. 231)

says: "Acquired syphilis but rarely gives rise to parenchymatous keratitis. The cases cited as such are not all authentic; many are examples of iritis or irido-choroiditis, which have produced secondarily a deep lesion of the cornea. It is a curious fact that syphilis in the adult rarely attacks the corneal tissues."

This patient was an intelligent man and gave such a clear account of his case that there can be no doubt of the character of the trouble. I have seen parenchymatous keratitis due to congenital syphilis three times in persons between twenty and thirty years of age, but have not seen another case in which it seemed so clearly due to acquired syphilis.

In regard to the late lesions manifesting themselves on the right side only, it would suggest a central trouble producing trophic changes which rendered the right side more vulnerable than the left. This is speculation, as no history or signs of central trouble were discoverable.

2. LEAD DEPOSITS ON THE CORNEA, WITH VERIFICATION BY MICRO-CHEMICAL TESTS.—A negro man consulted me during the winter of 1900, complaining of very poor vision in the right eye, and considerable irritation in the organ. Four months before, while suffering from pneumonia, the eye became sore with what his attendant told him was an ulcer of the cornea. On the advice of some old women he instilled a solution of "sugar of lead" into the eye for some days. There was a large scale-like white deposit running almost entirely across the cornea, and about 4 mm. in its vertical diameter and surrounded by a halo of hazy corneal tissue. This was detached in two sittings under holocain anesthesia, the surface left healing in a few days under protective treatment. The vision was greatly improved and the irritation symptoms relieved. I submitted the specimen to Dr. William Krauss, who reported as follows:

"Dear Doctor: The specimen from the cornea shows the micro-chemical reactions for lead, both the black color with hydrogen sulfid and the yellow with potassium iodid. The first reaction did not succeed quite as well as the last. This is the first time I have had occasion to try this interesting test.

Yours very truly,

"WILLIAM KRAUSS."

I am led to report this case because the condition is rarely met with, thanks to the energetic teachings of the text-books against the use of lead solutions where the corneal epithelium is broken. Also because Dr. Risley, of Philadelphia, has recently reported a similar case in which no reaction for lead could be obtained from the deposit. Furthermore, the

case illustrates the reality of the danger of this practice and may impress the fact that it is not a text-book legend.

3. *CILIA IN THE PUNCTA LACHRYMALIA*.—Four cases of this sort have come under my observation. The first three were cases in which conjunctival irritation existed, and a cilia was easily seen protruding from the lower punctum. It is curious to note that this occurred twice in the same patient at an interval of about a year.

The last case was a young lady who thought she had a foreign body in the eye. A small conjunctival ulcer was seen to the nasal side of the cornea under the site of the upper punctum. Close inspection showed a small white substance protruding from the punctum, which was caught with epilating forceps and withdrawn. It was apparently a bristle from a brush, and was about one-quarter of an inch long. She could not remember when such a substance could have gotten into the eye, but this could easily have happened when brushing the hair or clothing.

Porter Building.

A CLINICAL AND HISTOLOGIC STUDY OF A CASE OF MELANOTIC SARCOMA OF THE CHORIOID, PRESENTING SYMPTOMS OF SEC- ONDARY GLAUCOMA.*

BY CHARLES A. OLIVER, A. M., M.D.

Attending Surgeon to Wills' Eye Hospital; Ophthalmic Surgeon to the Philadelphia Hospital, etc.

This day one year ago I saw for the first time W. F. L., a forty-nine-year-old farmer. He informed me that two years previously he had been struck over the inner angle of the left eye with a stick. Since the time of the accident vision with that eye had been defective. The organ, however, had been painless, except during an attack of influenza some months before I saw him, during which time he had some neuralgic twinges in and about it.

Externally, the affected eye appeared healthy; vision was reduced to about one-twelfth of normal, this being attained in a rather contracted and somewhat excentric field to the temporal side. The pupil was properly sized, and the iris seemed freely responsive to light-stimulus and efforts for accommodation. The ophthalmoscope showed a large freely movable detachment of the retina. This detachment involved the upper

*Read before the April, 1900, meeting of the Section on Ophthalmology of the College of Physicians of Philadelphia.

outer two-thirds of the retina, its inner borders at times hiding the surface of the optic nerve head. Apparently there was not the slightest indication of a new growth. Intraocular tension was diminished.

The right eye was normal.

Six months later I saw the patient for the second time. He came complaining that for a week past the affected eye had been irritable. At this visit I found that the tension of the eyeball had become markedly increased, and the crystalline lens was somewhat opaque. The anterior chamber was shallowed, and its filtration angle appeared closed. A distinct tumor-mass could be seen situated behind the detached and freely mobile retina. Numerous fresh hemorrhages were visible in the superficial layers of the retina and in the vitreous chamber. Vision was reduced to light-perception in one point of the former visual field down and out.

The right eye remained healthy.

In two days' time the pupil of the affected organ had become about one-half dilated. Intraocular tension rose still higher than it had been at the last visit, and the eyeball was complained of as intensely painful. Its cornea was steamed and hazy, while a few fresh hemorrhagic extravasations could be seen in the lower anterior portion of its iris.

Examination of the heart evidenced the presence of aortic disease.

In spite of the betterment of both the ocular and the general conditions by the local use of eserine, hot stupes, and the internal administration of nitroglycerine, I immediately enucleated the organ, resecting the optic nerve far back in the orbit after the removal of the globe.

The recovery from the operation was uneventful, and the patient has remained apparently free from any local extension of the disease or metastasis.

The eyeball was placed in a five per cent strength solution of formalin, and was given to Dr. Edward A. Shumway in charge of Eye Department of the Pathological Laboratories of the Philadelphia Polyclinic and College for Graduates in Medicine. At the end of twenty-four hours' time it was cut into an anterior and a posterior half by a section carried through its equatorial region.

Macroscopically, the presence of an intraocular growth occupying the temporal portion of the globe, and extending from the optic nerve head to a position just behind the ora serrata, could be readily determined. The tumor-mass was deeply pigmented in places and exhibited a marbled appearance which was composed of whitish yellow areas that were separated from both the growth and chorioïd by an albuminous exudate.

The anterior half of the eyeball was hardened in alcohol, embedded

in celloidin, and sectioned parallel to the plane of the original equatorial incision. The posterior part of the organ was mounted in glycerine-jelly, but subsequently it was dissolved from this menstrum, hardened in alcohol and embedded in celloidin. Later, this half was divided in a horizontal meridian passing through the optic nerve head, and sections were made parallel to this plane. These sections were stained with hematoxylin blue. Some of these were treated by the Weigert-Pal method in order to determine the condition of the optic nerve.

Dr. Shumway reports that the sections made from the posterior half of the organ may be considered as sufficiently typical for the description of the entire growth. The tumor-mass, he says, "extends from the nerve entrance forward as far as the section reaches, and measures ten millimeters in width at the limit of the section anteriorly. The retina is folded together, and is applied closely to the tumor, being bent slightly beyond the median line. Its nerve layer is replaced by a newly formed connective tissue which contains numerous cells. The ganglion cells have almost entirely disappeared. Some of the retinal vessels are patulous, and show red blood corpuscles; others are filled with a homogenous mass, which stains deeply with eosin. The nuclear layers are fairly regular and their cell nuclei stain well. The rods and cones have become completely disorganized. The retinal pigment cells are notably proliferated, and they can be traced by their rod-shaped pigment for a short distance into the tumor. In places the pigment cells are separated by a layer of organized exudate. The nerve shows a relative increase in the amount of supporting tissue, and a considerable increase of the cellular elements. The fibers themselves are atrophic, and refuse to stain by the Weigert-Pal method."

The tumor, he found, sprang from the chorioid, and was composed chiefly of round and spindle-shaped cells, whose cell bodies were nearly filled by the large deeply staining nuclei, the chromatin filaments of which showed very prominently. In his report he states that "a large number of karyokinetic figures are evident, especially in the newer parts of the growth. The cells are everywhere separated by a fine intracellular substance, which in places becomes sufficiently prominent to be recognized under low power. The growth is very vascular, the part bordering on the nerve entrance showing broad blood channels extending from the sclera in a radial direction. Further forward the vessels are narrower, their walls consisting merely of a single layer of endothelial cells, and the tumor cells are directly applied to these, thus forming as it were solid ring-shaped mantles. In places these rings of cells are distinct, and are

separated from one another by cavities containing a homogenous fluid, with numerous large deeply pigmented cells." This, he thinks, "is evidently the youngest part of the growth, and the arrangements of cells around a central blood vessel," he believes, "justifies the diagnosis of angio-sarcoma."

"In the older parts of the tumor these rings of cells," he says, "have coalesced into a solid mass, and here the tumor has the appearance of an ordinary spindle cell sarcoma. This portion, too, exhibits broad areas of degenerated cells with granular pigment."

In the vicinity of the retinal membrane there were great numbers of cells of an epithelioid type in addition to the ordinary spindle-shaped ones. These were of many sizes. The protoplasm of the cell body was finely granular, and the nuclei were vesicular in type and comparatively small. Numerous cells were polynuclear, while the majority of them contained deeply staining nucleoli. Many exhibited distinct karyokinetic figures.

The sections made through the anterior half of the eyeball showed to better advantage the origin of the growth from the middle and the external divisions of the chorioid. The chorio-capillaris and the lamina vitrea could be followed as unbroken layers over a considerable portion of the tumor-mass. The most dependent part was composed almost wholly of deeply pigmented cells. In the central portion of the section the cells gave evidences of nuclear degeneration, lack of staining power, vacuolization, and degeneration. This portion of the growth was quite vascular, but failed to evidence any definite arrangement of separate mantles of cells.

No tumor-masses could be seen outside of the scleral coat, although there were collections of cells which were identical with those found in the intraocular growth situated along the lines of the vascular channels that passed through this tunic.

REMARKS.—The case is instructive from both its clinical and its histologic standpoints.

When first seen, a freely movable detachment of the retina in a painless eyeball, with diminished intraocular tension and reduced vision dating from a traumatism, gave the usual symptomatology of an ordinary traumatic type of irremediable retinal detachment.

The sudden increase of tension of the eyeball with its concomitant numerous fresh hemorrhages in the retina, vitreous humor and iris; the slight opalescence of the crystalline lens and the corneal haze; the shallowing of the anterior chamber, particularly at its angle; the pupillary

dilatation; the reduction of vision to a single point of light-perception down and out; and the presence of a tumor-mass situated beneath the still fluctuating retinal area, some half a year after the case had been first studied, at once gave the true character of the disease and offered but one therapeutic measure—immediate removal of the eyeball.

In brief, the characteristic clinical symptoms as found in the early history of this type of the affection, with its abundant serum and absence of gross adhesive inflammation, rendering a diagnosis of the condition in its first stage impossible, were soon replaced by all of the signs of secondary glaucoma from increased intraocular tumor-pressure.

The pathologic findings were no less interesting. Arising from the middle and the external layers of the chorioid and densely pigmented in character, the growth was found to be composed of the round-celled and the spindle-celled types of sarcomatous elements. As is so usual with such growths, the chorio-capillaris and the lamina vitrea could be traced over a considerable extent of the mass, while the relative distribution of the pigment followed the rule of the greatest abundance near the sclerotic.

The pronounced vascularity of the growth in its extremely thin-walled channels, though frequently seen and probably associated with the more malignant types of the disease, was of interest as regards its position of greatest degree near the optic nerve entrance.

The whorls or “mantles” of deeply pigmented tumor-cells around the greatly attenuated vessel-walls were quite characteristic of the sarcomatous type of the growth. On the contrary, the amount of intercellular substance seemed to be somewhat more excessive than is usually found in such cases. The fibroid degeneration of the retina with the secondary atrophy of the optic nerve was of much interest, while the commencing extensions of the tumor-cells along the vascular channels of the sclera was of the utmost prognostic moment.

Finally, the organ—removed: the want of local recurrence distinctly showed that all of the neoplastic structures had been removed at the time of the operation in spite of the glaucomatous attack, which fortunately was not permitted to exist for any period of time; while the non-appearance of any metastasis as yet (though of course too early period for any positiveness of conclusion), is expressive at least of the freedom of the general circulation from the presence of any of the tumor-cells.

A CASE OF FOREIGN BODY IN THE LENS—CATARACT—
IRIDECTOMY—REMOVAL OF STEEL WITH MAGNET
—REMOVAL OF LENS—INTRAOCULAR HEMOR-
RHAGES—EVACUATION OF HEMOR-
RHAGES—GOOD RESULT.

BY FRANK ALLPORT, M.D.

CHICAGO, ILL.

Mr. O. O. M., age 27, section foreman of railroad, January 20, 1900, was repairing fence. A piece of steel flew from hammer and hit him in the right eye. A local physician in Iowa made an examination, and told him nothing was in the eye. Vision rapidly failed, and April 13th I was consulted. The eye was unirritated. He had a complete traumatic cataract; examination disclosed a small piece of steel in the posterior portion of the lens. Notwithstanding many authorities advise non-interference when foreign bodies are located in this portion of the eye, I advised its removal, and the patient went at once to St. Luke's Hospital. Under cocaine anæsthesia I made an iridectomy, feeling that iritis was liable to supervene, and that therefore an iridectomy was an operation of prudence. It was also felt that the foreign body and lens could be easier removed under such circumstances. Two courses were now open. One to endeavor to remove the foreign body first, or to endeavor to remove lens and foreign body together. I selected the former course, feeling that traumatic cataracts are always soft, and that it would prove exceedingly doubtful whether the lens would be sufficiently hard to carry with it the foreign body upon its delivery. In the event of the removal of the lens and the remaining behind of the foreign body, I felt that it would be a difficult and more or less hazardous undertaking to then search for and deliver the foreign body. After making the iridectomy, I therefore passed into the anterior chamber a delicate but powerful electro-magnet, and held its point directly over the pathway pursued by the steel at the time of its entrance, a pathway marked not only by a small corneal opacity, but also by a track seen distinctly through the lens substance itself. Upon removing the magnet I was rejoiced to find the foreign body adherent to its point. It was a sharp jagged piece of steel about the size of the head of a small pin. The lens was then removed without difficulty and the eye

bandaged. Two days after, the bandage was removed, the patient being in a sitting posture. The eye was absolutely uninflamed and presented an ideal result. The patient, however, fainted away under excitement, after which the eye was bandaged. That night the eye became very painful, and the bandage was removed the next day for inspection. A large hemorrhage was observed in the anterior chamber. Atropine was applied and the bandage readjusted. That night the eye was diminishingly painful, and upon inspection the next morning much of the hemorrhage was absorbed. The patient, however, who was again in a sitting posture, fainted away, and a very painful night was repeated. The next night was also very painful, and the next morning an inspection revealed large masses of blood in the anterior chamber. That afternoon I made an ample opening into the cornea at the site of the original operative wound and thoroughly evacuated the blood. The patient was kept in a recumbent position for a week and atropine and bandages applied each day. He made an uneventful recovery, and May 5th, with a +10.00 sph., showed a vision of 20/40.

92 State St.

A DIAGNOSTIC POINT IN THIRD NERVE PARALYSIS.

BY CHARLES A. WISHART, M.D.

Ophthalmologist to the Eye, Ear and Throat Hospital of Pittsburg, Pa.

Illustrated.

As regards the seat of their lesions, paralyses of the third nerve are classified as: First, Central; second, Nuclear; third, Basal (or trunkal), and fourth, Intra-orbital.

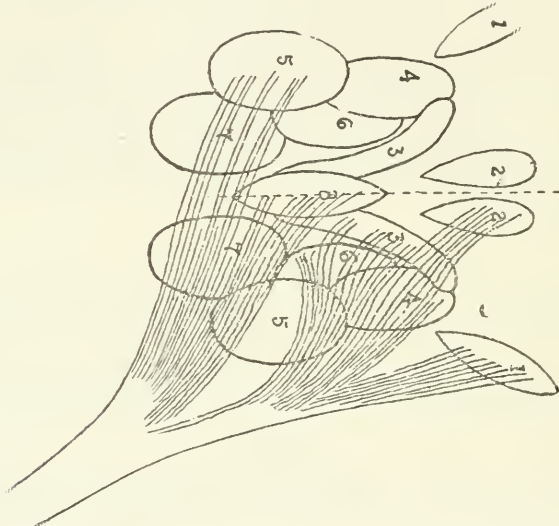
The question here to be considered concerns the second and third classes only, and may be stated thus: Given a case of Complete Third Nerve Paralysis, is there any single and constant symptom or syndrome by which we can determine whether it be due to a lesion affecting the nuclei in the floor of the aqueduct of Sylvius or the trunk of the nerve at the base of the brain?

In order to decide this question it will be necessary to indicate the mode of origin, or emergence, of the fibers, which combine to form the third nerve, from their nuclei in the floor of the aqueduct. Knies* says: "According to Gudden and Spitzka the motor-oculi nerve takes its origin from the nucleus in such a way that its fibers pass out from the anterior

*The Eye in General Diseases, Wm. Wood & Co., 1895.

division (1, 2) and the inferior part of the posterior division (6, 7) of the same side, and from the superior part of the posterior division (4, 5) of the opposite side. According to Perlia (vide the scheme) the crossed part is derived only from the posterior cell group (5) of the upper part of the principal nucleus. . . . Hence the motor-oculi nucleus of each side contains the nuclei of those muscles which take part in the movement of both eyes toward the opposite side, i. e., the internal, superior and inferior recti of the same eye and the inferior oblique of the opposite eye."

Accepting this statement as sufficient, though other authorities as to



Schematic Diagram of the Nuclei of the Third Nerve, showing Decussation of Fibres to Inf. Oblique. (After Knies.)

1. Sphincter Iridis; 2. Levator Palpeb.; 3. Ciliary Muscle; 4. Sup. Rect.; 5. Inf. Oblique; 6. Int. Rect. (conjugate movements); 7. Inf. Rect.; 8. Int. Rect. (convergence).

the decussation of the fibers for the inferior oblique might be quoted if necessary, it follows that if the lesion is basal and unilateral there will be found paralysis of all the muscles supplied by the third nerve in the eye on the same side as the lesion, but if the lesion is nuclear and unilateral there will be paralysis of all the muscles supplied by the third nerve in the eye on the same side as the lesion *except the inferior oblique*, together with paralysis of the inferior oblique alone in the opposite eye. In the first instance there is Complete Monocular Third Nerve Paralysis; in the second, Complete Unilateral Nuclear Third Nerve Paralysis.

The only case of the latter variety of which I have any knowledge was reported by me in *The Journal of Nervous and Mental Diseases*, December, 1897, under the title, "A Form of Total Third Nerve Paralysis, Typical of a Unilateral Nuclear Lesion, with a Case," and was at first mistaken for a case of Complete Monocular Third Nerve Paralysis. Only repeated and careful study of the double images in varying directions of the gaze, disclosed the fact that in the manifestly paralyzed eye the inferior oblique muscle, as well as the superior oblique and the external rectus, was intact, and that in the apparently healthy eye the inferior oblique alone was paralyzed.

A nuclear lesion, to produce a complete monocular paralysis, must involve all of the nuclei on one side of the brain except that for the inferior oblique (5), and at the same time affect the latter alone on the opposite side. This, I think it will be admitted, is at the least improbable.

515 Penn Ave.

UPON THE RELATIONSHIP OF CERTAIN CATARRHAL AND PURULENT INFLAMMATIONS OF THE CON- JUNCTIVA TO URETHRITIS AND ARTHRITIS.

BY H. McI. MORTON.

MINNEAPOLIS.

It seems probable that certain more or less violent catarrhal processes of the conjunctiva with mucoid, or muco-purulent, secretion, and synchronous with gonorrhœal urethritis, are more reasonably explained by the conveyance of toxins of the cocci, or the cocci themselves, through the circulation of the conjunctiva than by external infection. I am not aware that any typical purulent (gonorrhœal) conjunctivitis has resulted through the agency of the circulation, but that cases of recurrent and exceedingly acute catarrhal inflammation do result from the deposition of infecting material within the conjunctivæ through this agency is supported by positive experimental and strong confirmatory clinical evidence. In patients afflicted with urethritis, the gonococcus has been found in the circulation, within the joint membrane, upon the cardiac valves, and beneath the conjunctival membrane itself.

Dr. Frank C. Davis, of Minneapolis, in investigations at the Johns Hopkins Hospital found the gonococcus in the median cephalic vein of a patient suffering from gonorrhœa. The gravity of specific urethritis and its far-reaching and serious effects upon distant tissues is, I fear, not always duly appreciated.

Observation relative to the not infrequent coincidence of violent acute conjunctivitis and a coexisting urethritis has led me to the conclusion that these cases are not necessarily the result of manual infection. In several patients the phenomena observed could only be satisfactorily accounted for upon the—in the light of bacterial proof—not untenable theory that the bacteria reach the conjunctiva through the circulation.

This case—one of several—is suggestive and instructive as a clinical type; W. E., aged forty-five, has had chronic urethritis for some time. Had but a slight watery and occasional discharge from the urethra. During the acute attack and subsequent to it he had been warned repeatedly of the danger due to conveyance of material from the urethra to the eyes. Being a man of marked intelligence, this instruction was carefully and continuously obeyed. He consulted me relative to a very acute catarrhal inflammation of both eyes and of about equal intensity. A muco-purulent discharge with brick-red injection of the bulbus was present, but no chemosis. I suspected that I had to deal with the first stage of a purulent conjunctivitis, and applied treatment at once consistent with such conclusion. The disease stopped short of the second typical stage. Subsequent to this attack he was afflicted with two other attacks, in which both eyes were involved, and to the same degree, with muco-purulent discharge. Extreme care preceding the first attack was followed by measures that practically—in a man of acute mind, remember—precluded the possibility of hand infection.

Several cases in which such sequelæ attended urethral inflammation, and in which the probability of infection by hand was almost *nil*, gave me reason to be suspicious of the true relationship between the urethral and conjunctival inflammation. I would not insist, of course, that the infection did not come from external causes, yet the evidence is strongly suggestive in this case, as in others as well.

Before proceeding to speak of the relationship of purulent processes of the conjunctiva to arthritis I desire to say a word relative to the use of silver nitrate in the first stage—stage of injection—of purulent conjunctivitis, a stage frequently, if not usually, difficult to differentiate from acute catarrhal conjunctivitis. In this stage writers as a rule suggest that the application of silver be omitted. I believe this to be a very serious error in our teaching. In this stage it is the writer's strong conviction that silver is of more real value than in any other in the entire course of the disease. At no subsequent period of the attack can silver do so well just what we expect it to do; i. e., remove the superficial layers of tissue containing the gonococcus. It has been my experience that cases attacked

at once by the silver solution have a much milder degree of inflammation in the second stage, and with greater degree of immunity from corneal involvement.

It has also been a matter of common observation to the writer that arthritis follows purulent disease of the conjunctiva (with an existing gonorrhoeal urethritis) in cases that have many times before had urethritis (without conjunctival infection), and no arthritis.

I thought it possible that the involvement of so vascular a membrane as the conjunctiva, as well as its greater extent, offers a more favorable opportunity for the introduction of the gonococcus into the general circulation than is offered by a simple involvement of the anterior portion of the urethra alone, since in previous attacks of urethritis—no conjunctivitis being present—no arthritis occurred. Experimental evidence to support this supposition is not wanting. Deutschmann inoculated the conjunctiva of patients—blind, and also paid for this service—with the gonococcus, and saw arthritis follow from the inflammation induced. No urethritis existed in these cases.

Recent study has shown the migratory character of the gonococcus. As previously stated, it has been found upon the joint membranes, upon the valves of the heart, within the veins, and in the conjunctiva itself, in cases where the original seat of the disease lay in the urethra alone. My friend Dr. W. B. Murray, of this city, reported a case of interest in this connection in the February issue of *THE OPHTHALMIC RECORD*.

Finally, I wish to add, that in those acute catarrhal processes of the conjunctiva due to the causes we have just discussed in this paper, there not infrequently follows a more or less typical trachoma.

THE OPHTHALMIC RECORD.

*A MONTHLY REVIEW OF THE PROGRESS OF
OPHTHALMOLOGY.*

VOLUME IX.

CHICAGO, JUNE, 1900.

NO. 6. NEW SERIES.

EDITORIALS.

As we go to press we have received an unconfirmed and, we trust, unfounded report of the death of our co-worker, Dr. Edwin Von Millingen, at Constantinople. A further reference to this matter will be made in our July issue.

THE NEW SNELLEN EYES.

Since Snellen advocated the double-walled artificial eye, to be worn in the socket after enucleation of the eyeball as a substitute for the shell, we have been patiently waiting for some enterprising optician to put in a small stock of these new eyes that we might give them a trial. Meyrowitz imported a few samples, a few of which I obtained, and from them found one that was suited to the orbit of a patient in hand. I had enucleated the left eye of this patient one week prior to the adjustment of the Snellen prothesis. Having instructed him how to insert it and remove it, he was told to remove it in the course of a few hours. This he did not do, but wore it the entire day, and reported the next day with it in position, stating that he had had no inconvenience from it. I found the eye free from secretion, and am now pleased to report that after a period of two months the eye is free from secretion and epiphora, and the stump is free from irritation. The cosmetic result is as good as after Mules's operation. This one case encourages me to hope that we have in the Snellen eyes a means of accomplishing all that can be obtained from the substitutes for enucleation. I write this to urge others to ask their opticians to put in a supply of these eyes. If this is done we shall soon have a supply of them in this country. It may be that some progressive optician has already laid in a stock. The readers of this journal would no doubt be glad to know the address of any such firm.

MELVILLE BLACK.

CORRESPONDENCE.

CHANGE IN THE APPARENT DISTANCE OF OBJECTS PRODUCED BY PRISMS.

49 EAST THIRTIETH ST., NEW YORK, May 7, 1900.

TO THE EDITORS OF THE OPHTHALMIC RECORD:

Dear Sirs: In your March issue Dr. White calls attention to the discrepancy existing between the statements of different authors as to the effect of prisms upon the apparent distance of objects. This is a subject that has interested me a good deal, and eleven years ago I made a series of experiments to determine the facts of the case. Since then I have followed up the subject more or less, as opportunity offered, in my office practice, and I am convinced that, while Maddox's statement would seem on a priori grounds to be the correct one, the facts are as stated by Dr. Allen. In other words, I have uniformly found that with converging prisms (prisms base out) the patients either alleged that objects appeared to be at the same distance as without the prisms, or in the majority of cases said that objects looked smaller and farther off. In no instance, so far as I can recollect, did prisms base out make objects look nearer than they really were. Moreover, the indications in my series of experiments were that those who alleged that the prisms made no difference in the apparent distance of objects were either inattentive or were speaking according to their prepossessions, and not according to actual observation. Hence, so far as my experience goes, the effect of prisms base out is to make objects look farther off than they really are.

That this effect is due to the effort of convergence set up by the prisms, and not to any alteration in the size of the image or other optical illusion produced by the prism itself, is evident from the fact that so long as the observer fails to exercise his convergence, i. e., does not make any effort to unite the double images that he sees through the prisms, these images appear of their natural size and at their natural distance. As soon as he forces the images together, the single image produced by their fusion at once appears small and remote.

That the actual size of the image is not diminished is likewise proved

by the fact that the smallest type visible at the given distance without the prisms is also visible with the prisms, provided the accommodation is relaxed or provided a concave glass is superadded to compensate for the spasm of accommodation produced by the prisms.

The explanation of this phenomenon is not easy. I at one time thought that the spasm of accommodation set up by the effort of convergence might be responsible for the illusion, but this view seems effectually negated, inasmuch as the phenomenon is just as apparent when the accommodation is paralyzed by atropine.

ALEXANDER DUANE.

THE CROSSED CYLINDER IN THE DETERMINATION OF REFRACTION.

EDITORS OF THE OPHTHALMIC RECORD:

Dear Sirs: After reading Dr. Schneideman's article in the April number of your journal, and studying his illustrative case carefully, I fail to see that the method of determining the refraction of an eye as advocated therein has any advantage over the ordinary plus and minus cylinders and plus and minus spheres. I do not say you cannot do with his "crossed cylinders" all he claims you can, but I do believe another method is shorter and simpler. To show that it is, I will take the imaginary case he uses in his article, i. e., one whose correction is $+1.75\text{C} + 1.00\text{ ax. } 90^\circ$, on which an approximate correction of $+2.25\text{C} + .50\text{ ax. } 90^\circ$ has been placed, the cylinder being in the proper meridian. Of course, in actual practice we would have no knowledge that the first lens is the correct one, but we would not have to resort to the doctor's circuitous way to find it out. Having the patient turn his eye upon the astigmatic disc, the vertical meridian being exactly connected by the above approximate lens, he will instantly state that the lines in that meridian are the darkest ones. Now by trying simple cylinders with the axes placed horizontally, we soon learn that a $-.50$ cylinder equalizes all the lines and gives best vision. Taking this form, the spherical lens already on, we have $+1.75\text{ sph.}$, which exactly corrects the horizontal meridian, and adding to the vertical cylinder the $.50\text{ D.}$ we took away in changing the sphere, that meridian remains corrected also. Thus at one step we arrive at the point it takes the doctor four steps to reach.

If we take the case after he has made his first changes, that is when the lens found reads $+2.00\text{C} .75\text{ ax. } 90^\circ$, by proceeding as above, we

soon find that the vertical meridian is again corrected, and that a $-.25$ ax. 180° equalizes the astigmatic cord and gives best vision. So can it be shown, I believe, in any real or imaginary case, the simpler lenses are just as good as the "crossed cylinders," and in a great many cases much better.

I hope that Dr. Schneideman will take this criticism in the kindly spirit in which it is meant.

JAS. W. DUNN, M.D.

CAIRO, ILL., April 25, 1900.

YELLOW VISION AFTER SNAKE BITE.—Richard Hilbert mentions the various conditions attended with the phenomenon of colored vision. So far as he is aware his is the first report of seeing yellow after snake bite. A young girl, walking barefoot in the fields, fell, with a piercing cry that she was bitten in the toe by a snake. The snake was seen by others. An hour later, when brought to the office, blood could be squeezed from the wound near the nail. The limb was 5 cm. greater in the middle thigh than its fellow, and the calf 4 cm. The next day there were stiffness and pain, besides the symptom that all light-colored objects appeared bright yellow. A bluish discoloration of the skin extending over the abdomen required fourteen days to disappear. It was seven and a half weeks before the child was well again. It would be interesting to learn whether in tropical countries, where snake bite is more frequent, yellow vision is a common symptom.—*Memorabilien*, April 3, 1900.

REPORTS OF SOCIETIES.

SECTION ON OPHTHALMOLOGY.

COLLEGE OF PHYSICIANS OF PHILADELPHIA.

Meeting April 17, 1900. Dr. G. E. de Schweinitz, Acting Chairman, presiding.

Dr. Howard F. Hansell exhibited a piece of solder, $1\frac{1}{2} \times 1$ cm., that had been removed from the upper conjunctival sac of a plumber's assistant. The metal had entered the space between the upper lid and ball with considerable force while soft, where it had been molded to conform exactly to the size and shape of the cul-de-sac. The cornea and conjunctiva were burned, but recovered completely under treatment by cold, followed by hot compresses, frequent instillations of atropinized fluid vaseline, and separation of the opposing raw conjunctival surfaces by a probe and by manipulation.

Discussion.—Dr. de Schweinitz related a similar case. The metal piece, however, was smaller, not covering the cornea, and the eye recovered without symblepharon or corneal scar. Dr. Oliver cited three examples of the condition, and he agreed with Lawson that the immediate conversion of conjunctival moisture into steam retarded the burning, and thus tended to save the organ from destruction. In addition, he stated that the characteristics of solder burns, namely, the immediate expansive power of the generated steam, the relative low temperature of the metal, the rapid cooling, and the smooth and rounded surface of the cooled masses, are absent in injuries with denser and harder metals.

Dr. W. Zentmayer read the notes of a case of *Sympathetic Inflammation Occurring more than Two Months after Enucleation* following the removal of a piece of steel from the vitreous body. The foreign body measured 14×3 mm., and was extracted by means of a Hirschberg magnet, but the eye was enucleated three weeks later on account of irido-cyclitis. The fellow eye at this time appeared normal in every respect, but nine weeks later became the seat of a sero-plastic irido-cyclitis with marked neuro-retinitis, which at the present time, four months after its onset, has

nearly subsided, leaving the eye but little damaged. There was a neuritis present in the optic nerve of the removed eye.

Dr. John T. Carpenter read a paper on *Glaucoma in Myopia*, with report of two cases. In one, a woman, aged 57, there was shallow anterior chamber, pigment spots on the lens capsule, and adhesive inflammation at the lower inner quadrant of the filtration angle. $T. + 2$. $V. = \frac{6}{1\frac{1}{2}}$, under correction of myopia astigmatism. Eserine checked disease for over a year, but patient disappeared and later returned totally blind. The myopic astigmatism was regarded as only a coincidence of the glaucomatous process. The second case was a man, aged 39, with no marked choroidal changes, contraction of nasal field and an annular scotoma, deep anterior chamber, little if any rise in tension, but deep glaucomatous excavation, and at one period spontaneous hemorrhage into the cup. $V. = \frac{6}{8}$, with -6.50 S. As the peripheral field was gradually failing, iridectomy was performed with good results. The development of the glaucoma was believed to be due to the same cause which produced the myopia—the tension causing elongation of the eyeball and progressive myopia; while the unusually small cornea indicated that the eye had originally been hypermetropic. With the advent of sclerotic changes, and a halt in the yielding of the ocular tunics, there occurred glaucomatous pressure upon the nerve head, and the formation of excavation.

Discussion.—Dr. de Schweinitz agreed with Dr. Carpenter in his description of the relation of glaucoma and myopia. He thought that the percentage of glaucoma in myopia, as stated in the text-books, was too low. In his own analysis of sixty-three cases this percentage was 17, agreeing with that of Zentmayer and Posey.

Dr. Charles A. Oliver exhibited a case of *Complete Restoration of the Conjunctival Sac by a Single Skin Graft*, embracing almost the entire area of the conjunctiva. The narrow band of scar tissue was split throughout its length, and the graft, three times the size of the cicatrix, was stitched into place directly over the exposed orbital contents. Contrary to his usual method dry heat was kept constantly applied to the parts. In forty-eight hours the graft became vascularized in the region of the stitches, so that when they were removed a few days later, the stitch wounds bled. A week later the epidermal plates peeled off, leaving a healthy dermal graft that has remained intact.

Drs. W. C. Posey and E. A. Shumway gave a *Clinical and Pathological Report of Three Cases of Secondary Glaucoma*, representing different types of the disease. In the first case, the glaucoma followed repeated attacks

of iritis; in the second, irido-cyclitis, consequent upon detached retina in a myopic eye; and in the third, perforation from a corneal ulcer.

The microscopical examination in the first case showed chronic iritis; blocking of anterior chamber; excavation of nerve head; beginning atrophy of the retina, nearly complete atrophy of the nerve, and the complete disappearance of the nerve-fibers and investing tissue in one portion of the nerve, resulting in the formation of a cavity, just posterior to the excavation, which extended from the exterior sheath of the nerve almost to the central vessels. Under high magnification, fine fibers which had the appearance of typical neuroglia fibers were seen to cross the cavity. The few cells present were of this type also, but much larger than normal, showing numerous branching processes, proceeding from a central area of protoplasm, which included the deeply stained nucleus. The nerve-fibers themselves were seen to have not only become atrophic, but to have absolutely disappeared, whereas in other parts of the nerve they could still be traced between the fibrous septa.

It was believed that the area involved was one of rarefaction of tissue, in which the atrophic process was not accompanied by the usual sclerosis of the connective tissue fibers, whether of pial or neuroglia origin, and that, perhaps, to some extent the separation of the fibers, with the open spaces between, was increased by the process of hardening and imbedding the eye. It is possible that the interfering process was a local edema, although the cavity did not present the appearance of a cyst. There were no traces of previously existing exudate or hemorrhage.

In the second case there was detachment and secondary fibroid degeneration of the retina; plastic iritis with posterior and anterior synechiæ; occlusion of the pupil; anterior capsular and posterior cortical cataracts; and blocking of the angle of the anterior chamber.

The third case showed secondary cataract, occlusion of the filtration angle, hemorrhagic glaucoma, detached retina, and beginning atrophy of the globe. The point of greatest interest was the formation, in an exudate, on the surface of the choroid, of cavities, the largest being 2 and 3 mm. long and 1 mm. wide, resembling enlarged lymph spaces, and lined with a single layer of pigment cells. The pigment granules were in the form of the minute rods which are typical of the retinal pigment cells. These cavities were explained by a proliferation of the pigment cells, at first in a single layer, later in double layers. With shrinking of the exudate, the layers were pulled apart, fluid collected in the interstices, and the laminæ becoming more and more distended formed the cavities

described. In their complete form, it is possible that they might act as true lymph spaces, although lined with epithelium instead of endothelium.

Dr. Shumway called attention to a new mounting for sections of eyeballs, in which the strong convex portion is made separate from the cell holding the specimen. By this means one convex glass may be used for a number of mountings, while the removal of the glass permits the specimen to be studied in detail without distortion of the tissues.

Dr. Charles A. Oliver presented a *Clinical and Histologic Study of a Case of Melanotic Sarcoma of the Choroid* presenting symptoms of secondary glaucoma. When first seen, a freely movable detachment of the retina in a painless eyeball with diminished intra-ocular tension and reduced vision dating from a traumatism gave the usual symptomatology of an ordinary traumatic type of irremediable retinal detachment. Sudden increase of tension of the eyeball six months later, with all the signs of secondary hemorrhagic glaucoma, and the presence of a tumor-mass situated beneath the still fluctuating retinal area, showed the true character of the disease and necessitated immediate enucleation.

Arising from the middle and the external layers of the choroid and densely pigmented in character, the growth was found to be a round-celled and spindle-celled sarcoma. The chorio-capillaris and the lamina vitrea could be traced over a considerable extent of the mass, and the pigment was found in greatest abundance near the sclerotic. The vascularity of the growth was most pronounced near the optic nerve entrance. The whorls or "mantles" of deeply pigmented tumor-cells around the greatly attenuated vessel-walls were characteristic of sarcoma, although the amount of intercellular substance seemed to be more excessive than is usually found in such cases. The fibroid degeneration of the retina, the secondary atrophy of the optic nerve, and the extensions of the tumor-cells along the vessels of the sclera were of prognostic interest. There was no recurrence or evidence of metastasis.

Discussion.—Dr. Fenton, after referring to the investigations of Kirschbaumer of sixty-seven cases of choroidal tumor, with many autopsies, cited a case in which the growth of the tumor was measured accurately by perimetric tests.

Dr. C. A. Veasey reported a case of *Monocular Hysterical Amaurosis* in a girl, aged 11. There had been a history of occasional supraorbital and retro-ocular pain for some weeks, and one morning she awoke stating that she could not see with the left eye. A week later, V. = $\frac{6}{6}$ in O. D., but no recognition of concentrated light in O. S. The cornea and surrounding conjunctiva were partially anæsthetic. With Harlan's test it

was ascertained that vision was normal in each eye. The fields were then taken and the red and blue found completely reversed. Vision remained from the time of its return. Menstruation had not been established.

Discussion.—Dr. Oliver related the history of a case of binocular hysterical amblyopia in a 11-year-old girl. Without any local objective alterations, vision in each eye was reduced to $\frac{1}{18}$ of normal in greatly contracted fields which could be made to follow any order desired. With no other treatment than a boric-acid eye-wash and the prediction that all would be right in one week's time, normal vision in full fields returned on the day appointed and have remained so.

A Cured Retinal Detachment; with Remarks on Retinitis Striata.—Dr. de Schweinitz related the history of a case of retinal detachment occurring spontaneously in a myopic eye, which under the influence of rest in bed, pilocarpine diaphoresis, and sodium iodide, became reattached at the end of three days, with complete restoration of the function of the eye. After the reattachment of the retina there was ophthalmoscopically evident a bifurcated pigmented line with a whitish stripe in its center, which resembled the so-called retinitis, or chorio-retinitis striata. The ophthalmoscopic appearances were regarded as an interesting confirmation of the views of Caspar that the affection, retinitis striata, represents the remains of cured detachments of the retina and is not, at least not always, of hemorrhagic origin. The paper was illustrated with charts of the field of vision and a water-color sketch representing the ophthalmoscopic appearances.

Discussion.—Dr. Oliver had seen a similar case, in which the detachment was in the macular region. Vision was normal with a —6 S. and continued so during the attack, during which the lens-strength was reduced by 3.50 D. Three years later, a deeply seated and linearly shaped pigment splotch alone remained to designate the position of the previous attachment.

WILLIAM M. SWEET,

Clerk of Section.

SAN FRANCISCO SOCIETY OF EYE, EAR, NOSE AND THROAT SURGEONS.

APRIL MEETING.

The First Vice-President, Dr. F. B. Eaton, in the chair.

Dr. A. B. McKee presented a boy, aged 14, whose *right eye had been injured three years ago by a pair of scissors*, a blade of which perforated the cornea and iris. A cyst of the iris had formed, nearly filling the

anterior chamber, and which had twice ruptured. This cyst appeared to be formed by a separation of the anterior and posterior layers of the iris by the fluid.

Discussion.—Dr. Geo. H. Powers thought a time might come when it would be wise to operate on the cyst.

Dr. R. D. Cohn considered it well to determine the nature of the cyst before removing it.

Dr. McKee had seen another case of puncture of the iris with accumulation of fluid. In the present case the posterior layer is united to the anterior capsule.

Dr. Eaton presented a woman, aged 38, who complained of *asthenopia*, and of *constantly seeing the right side of her nose when looking near*. There is complete paralysis of the left internal and external rectus, and of the right internus, but so far no tests showed any defective motility of other muscles. There is a high grade of astigmatism in each eye, and the history indicates that the muscular trouble is congenital. He would report further after investigation.

Dr. L. C. Deane exhibited an improved Wright's Nasal Snare, Emold's modification of Bosworth's Snare, a Universal Nasal Saw with beveled teeth, and Knight's Adenoid Forceps.

The *Discussion* on the *Muscular Tests* demonstrated by Drs. Eaton and Hulen at the last meeting being in order, Dr. Barkan used the Maddox rod, and finds different conditions on examining on different days, depending upon rest, digestion, light and work. Some cases improve under gymnastic prismatic exercise, but if, after some time, the old life is taken up, the same trouble is found on re-examination, the patient possibly not complaining any more.

He is opposed to partial tenotomy. Out-of-door exercise helps, and horseback riding is good; also, the morning cold bath, and resting the eyes for ten minutes at a time after one hour's work. Faradization of the muscles is possibly helpful. He manages to do good in some cases, and supposes that some cases go from him to others, as those of others come to him.

Dr. Deane: The use of no one test alone is sufficient (as, for instance, the Maddox rod test). He has found that different persons respond differently under the same test, in some the tendency to fusion being completely abolished; in others not, for they can overcome a two and even a three degree prism either way so as to fuse the real and blurred images (Maddox rod). One examination is not at all sufficient, and he agrees with those who say that the manifest quantity of heterophoria varies from day

to day. After several examinations, a proper estimate of the manifest amount of heterophoria can be arrived at, whether the tendency to deviation is due to a weak muscle on one side or an over-powerful one on the other. Two factors are to be considered in these tests: First, their mechanical nature, the measurement of muscular strength or weakness and ocular deviation of the visual axes by exact degrees of prism strength. Second, that we are dealing with human muscular energy and reflexes, and not with an exact mathematical problem. Many nervous idiosyncrasies have to be taken into account. The diagnosis of these cases cannot be exactly explained on the basis that one muscle is too strong or another too weak. There is a seat of nervous irritation, and that must be sought for. The combination of symptoms can be more numerous than in whist. What is needed is a correct diagnosis. There is in all such cases an error of muscular balance to be overcome. The nervous effort to accomplish this end manifests itself in the peculiar array of asthenopic symptoms, and the proper alleviation of such an effort is the proper road to a cure. Whether this may be accomplished by making a strong muscle weaker (tenotomy), or strengthening a weak muscle (prism practice or advancement), or allowing the eyes to assume their imperfect position of rest, and yet allow a focus to be formed on relatively the same part of the retina (wearing of prisms), is a matter that can only be settled by a correct diagnosis. His results as to the effect of tenotomy on such cases lead him to differ with Dr. Barkan as to the value of such treatment. He has operated more than two hundred times for such conditions, and the percentage of cases where relief has been obtained has been so large that he is encouraged to continue.

Dr. A. B. McKee: The subject of muscular anomalies of the eye seems to be in the condition of the decision of a certain judge, who, after a long and careful summing up of the evidence in a certain case, said: "The evidence all seems to be in favor of the plaintiff, but I shall give my decision in favor of the defendant." The majority of us seem to go on making careful tests of the muscles, but in the end our treatment is not very different from the old recognized methods—the prescribing of the correcting lenses, and attention to hygienic conditions. He has seen some cases of exophoria which showed marked improvement after a few days' practice of convergence exercises, but so rapid was the improvement that he has not been able to decide that the change was not due to psychic influence, or to improvement in the hygienic conditions. Some cases of esophoria have been greatly benefited by prisms, while others have complained of the same asthenopic symptoms while wearing the prisms.

In one case of asthenopia, the condition of the muscles after operation by a careful surgeon was apparently the same as my own, i. e., the adduction, abduction and sursumduction measured the same as my own, but while he is free from asthenopia the patient complained of the old symptoms.

Dr. Powers does not think many cases should be operated upon. Nearly all cases are neurasthenic, dyspeptic, or anæmic. All the means of diagnosis should be used.

Dr. G. P. Pond's experience in cases of muscular inequalities has led him to about the same conclusions as those of Dr. Barkan. He generally uses all the methods at hand in measuring the amount of muscular insufficiency, and the result is a very pretty array of figures, which, when practically applied, he has found do not give all he might hope for.

He has found only a few cases relieved by the use of prisms, and the result of ocular gymnastics has not been very satisfactory when permanency of result is considered. He finds that usually after correcting the error of refraction, if the symptoms are not relieved, the only thing left, in the majority of cases, is an operative procedure.

Dr. R. D. Cohn: The German and Austrian schools have devoted comparatively little attention to muscular insufficiencies. A glance at any of the German text-books will convince one of this. Thanks chiefly to the American school, we have arrived at a stage where we can diagnose muscular anomalies with a great degree of accuracy. There remains, however, a great deal to be accomplished as regards therapeutic results, which thus far have fallen far short of diagnostic results.

As to partial tenotomy, Dr. Cohn believes the great majority of oculists have abandoned it, and he places no faith in it.

Dr. Deane: All of us concede certain facts, that certain heterophorias cause asthenopia, and that prisms can sometimes relieve it. If squint can be improved by tenotomy, then by tenotomy we can get a proportional effect in heterophoria.

Dr. Barkan: What, Dr. Deane, do you call a partial tenotomy?

Dr. Deane: It implies a different meaning to different operators. I consider it a partial or graduated tenotomy when operating for a heterophoria, and muscular tests are used during the operation, and that it is a tenotomy when done for a heterotropia, when all the relaxation possible is to be obtained, and the tenotomy is a complete one involving the entire tendon as well as Tenon's capsule, etc.

A Member: What is your method of operating?

Dr. Deane, in performing a graduated tenotomy, first takes the mus-

cular balance with a Stevens phorometer; after the use of cocaine or holocaine, he grasps the conjunctiva over the insertion of the tendon with Stevens's fixation forceps, and with Stevens's scissors makes a small opening in it. He then grasps Tenon's capsule, and makes a similar sized opening exposing the tendon, and makes a small opening in the tendon. Through this he passes one blade of the scissors, and the other over the tendon, between it and Tenon's capsule, and makes a clip; then he tests the patient with the phorometer. If enough has not been accomplished, he repeats the same procedure in the opposite direction from the center opening, and keeps on testing and cutting until the desired balance is obtained. After the operation the patient is given a mild antiseptic lotion, and directed to go home and use the eyes as before.

Dr. Barkan: We probably mean the same thing as regards a partial tenotomy.

Dr. McKee: According to the dictum of the advocates of partial tenotomies, the muscle should be cut until orthophoria is present, but it seems to be pretty well established that the effect of partial tenotomies is nil. If, on the other hand, the tenotomies are complete, as some suspect, why does not divergent strabismus show itself after such operations upon the internal rectus?

Dr. Deane: That depends upon the amount and extent of the tenotomy. Of course, if the check ligament and Tenon's capsule be cut completely the effect will be greater; the number of degrees depends very much upon the strength of the antagonist of the muscle to be cut, and the exact nature and degree of the heterophoria. I should say 4° to 10° on an external rectus under ordinary circumstances. All those who condemn tenotomy for heterophoria concede certain facts: first, that imperfect muscular balance will produce asthenopia; second, that wearing prisms relieves the asthenopia; and third, that a tenotomy for squint is often effective. If prisms can relieve by placing the eyes at rest; if an operation for squint does permanently change the angle between the visual axes, why cannot we correct a lesser degree of deviation or a tendency to such deviation, as in heterophoria, by a similar means?

Dr. Cohn asked Dr. Deane if the cicatrization after partial tenotomy does not neutralize it? Also what proportion of bad results he has after operation?

Dr. Deane would like to wait until the next meeting, when he can present a tabulated report of thirty or forty of his cases showing the results of treatment.

Dr. V. H. Hulen (closing the discussion): Having noticed some

errors in the published report of his demonstration, to prevent misunderstanding, recapitulated the tests in the order he uses them: 1. Inspection of the face and skull for asymmetry. He has not found a relation necessarily existing between it and muscular imbalance. 2. Having the eyes follow a small object moved in various directions. Also fixing the object, advancing it toward the nose, noting which eye first deviates. 3. Screen test. 4. Parallax test. 5. Stevens's phorometer. 6. Maddox rod. This test is apparently more searching than the phorometer. 7. Maddox prism test. 8. Stevens's stenopaic lens shows the vertical and horizontal deviations simultaneously. 9. Tests for prism divergence, prism convergence and sursumvergence at twenty feet, and also at reading point. For these tests square prisms used in the adjustable trial box mounted on the arm of Stevens's phorometer are preferred to revolving prisms. 10. Field of binocular vision; steadying the head, covering one eye with a red glass, and having the eyes follow at four or five feet a candle in different parts of the field. 11. Stevens's tropometer is a useful instrument, and probably reveals some facts not otherwise discoverable. The correction of the refraction under complete mydriasis is always done, and many of the tests repeated while the patient is wearing the correcting glasses.

The subject at the last meeting was the tests for muscular anomalies, while the discussion this evening has been almost entirely on the *treatment* of the same. We will resist the temptation, which is great, to discuss treatment. As Dr. Barkan says, there is much to be learned yet about muscular anomalies, hence a discussion of the tests enumerated by Drs. Eaton and Hulen should be profitable to every member of the society. The first difficulty is making a correct diagnosis and determining just what and where the error is. Until this is done any treatment is uncertain, unscientific, and probably detrimental. When we have used in all our muscle cases the various tests at our command, and have done so systematically, carefully and repeatedly, and made correct records of our findings, then we may, by coöperation, learn something practical of muscular anomalies. Dr. Hulen exhibited a simple attachment for the square prism trial frame previously exhibited to the society, by which you can test rapidly and conveniently the muscular condition for the near point after having made the distance tests, without changing the position of the patient. The tests numbered 6, 7 and 8 may be carried out with advantage by this trial box.

Dr. Eaton (closing the discussion): There seems to be a persistent tendency to view the tests from the point of view of neurasthenia, and to

judge of their value with a patronizing, good natured skepticism. True, hasty enthusiasm and a disregard of functional neuroses has led to unnecessary clipping of muscles, but some of the most level-headed, competent and conservative oculists have, in properly selected cases, corrected and operated with notable success. If the making of the tests results only in a "pretty array of figures," it is a farce and waste of time. We must be able to build up from them a rational diagnosis founded on a correct knowledge of the etiology and pathology, just as in any other class of abnormal conditions.

Dr. Eaton does not think he is unduly eulogistic in claiming that the classification of muscular anomalies proposed by Dr. Duane, of New York, is in advance of that of any other writer. The tests are not by it viewed as indicating *symptoms*, such as exophoria, esophoria, etc., but as indicating the etiology and physiology of the anomaly. Exophoria may indicate weakness of an internus, convergence, insufficiency, divergence excess, or the two latter combined; and etiologically it may result from a lesion or abnormal insertion of the muscles, a lesion of their nerve branches, the nuclei, or the cerebral cortex, neurasthenia, etc. He would earnestly commend to the members the diagnostic table Dr. Duane has appended to his valuable essay; by it the various findings of the tests can be co-ordinated into a definite picture of the anomaly present.

OPHTHALMOLOGICAL SOCIETY OF THE UNITED KINGDOM.

CLINICAL EVENING.

THURSDAY, May 3, 1900.

G. Anderson Critchett, M. A., F. R. C. S. E., President, in the chair.

Mr. Nettleship read notes of two cases in which there were *opaque nerve fibers* seen with the ophthalmoscope, but these patches were separated from the disc by a considerable interval. He exhibited drawings of one of the cases in which the condition was depicted at the time when it was first seen and when the patient had normal acuteness of vision. Another drawing taken three years later showed complete atrophy of the optic nerve, and the patch of opaque nerve fibers could only just be seen, having undergone atrophy with the rest of the nerve.

Mr. Adams Frost said he had seen a similar case, in which after atrophy of the optic nerve the opaque nerve fibers had almost disappeared.

Mr. Doyne mentioned a case he had seen similar to those described

by Mr. Nettleship in which optic neuritis came on. This subsided without causing atrophy of the nerve and the patch remained as before.

The President showed a boy for whom he had done *optical iridectomies for Lamellar Cataracts*. In such cases in which the opacity was central and the vision much improved by dilating the pupil he much preferred this operation to that of removing the lens. After the operation the patient saw $\frac{6}{8}$ and J i.

Mr. Reginald Bickerton showed an elderly woman whose *right eye on stooping became proptosed*. The sight was defective, owing to old ulceration. Under ordinary circumstances there was no enophthalmos. There was a double mitral murmur. In discussing the cause Mr. Bickerton thought it was probably a vascular growth or else due to the too free communication between the orbital veins (which have no valves) with the Cavernous Sinus.

Mr. Doyne mentioned the case of a man, aged 25, who had suffered from a similar condition all his life. Without any obvious cause he suddenly got most severe proptosis with inflammatory signs in the orbit. These all subsided, but the eye became blind and there was no longer any tendency to proptosis.

Mr. W. T. Lister showed a case of *Macular Coloboma associated with old Choroiditis*. He thought that in this case the coloboma was of an inflammatory origin rather than developmental.

Mr. Lawford discussed the matter and was also inclined to look upon the origin of such as being inflammatory.

Mr. Keeling (for Mr. Juler) exhibited *Dr. Emile Berger's Binocular and Stereoscopic Lenses*. The instrument consists of two decentered convex lenses inclined horizontally to each other. The advantages over a simple lens are the better perception of relief, and the fact that little or no accommodation is necessary.

Mr. Juler also showed a case of *Proptosis with Ophthalmoplegia Externa*. Five years ago the patient had a similar attack in the same eye, but the sight was not impaired. The pain was severe, but had subsided. Some proptosis and complete loss of movement persisted. The present attack began early this year. In March severe neuro-retinitis supervened. There was no definite history of syphilis nor tubercle. Iodide of potassium had been given, but without benefit. The diagnosis of an inflammatory growth intimately involving the optic nerve is probable.

Mr. Beaumont drew attention to what appeared to be a persistent pupillary membrane, and also to the high degree of hypermetropia, due, he thought, to the growth flattening the eyeball from before back.

Mr. Nettleship gave it as his opinion that the retina was really raised by an intraocular growth.

Mr. Treacher Collins showed a case with a *Congenital Notch in Lower Lid*, with some want of development of the malar bone.

Mr. Sydney Stephenson showed a child with a *Metallic Deposit on the Cornea*, which probably came about in the following manner: The patient had suffered from trachoma, and for its treatment the solid stick of pure nitrate of silver had been applied by a practitioner, who had then washed the eye with sodium chloride. The cornea being abraded had got some chloride of silver deposited into it.

The President thought that it might clear a good deal if left alone, and thought that nothing should be done in order remove it under six months.

Mr. Rayner Batten showed a girl with *Congenitally Displaced Lenses*, who had also *Aniridia and Glaucoma*. She was quite blind in one eye, and could only just perceive light in the other.

Messrs. Higgins and Ormond exhibited a specimen of a *Spindle Celled Sarcoma of the Choroid*, which had been removed with the eye by Dr. Cole Baker, of Southsea, in November, 1897. The patient is still alive and well, with no sign of recurrence.

Mr. F. M. Ogilvie showed a patient who *shot himself with a revolver in the right temple* on December 6, 1899. The bullet did not emerge. He never lost consciousness, but the sight of the right eye was immediately lost, while that of the left became reduced. On December 10 the right eye was excised, but it was found not to have been perforated, as had been supposed, nor was the optic nerve cut. The vision of the left eye improved from $\frac{6}{80}$ to $\frac{6}{24}$ and J 4. Ophthalmoscopically the eye showed a very remarkable central lesion. The disc and vessels were normal, but at the macula was a slightly irregular oval area, quite sharply defined and depressed below the surrounding fundus, looking almost as if a trephine had been applied and this part of the retina bodily removed, the depression amounting to 2 D. The bullet was located with great exactness in the left orbit almost in contact with the posterior and nasal sides. A number of very beautiful skiagrams taken by Dr. Mackenzie Davidson were shown illustrating this.

Mr. Ogilvie concluded by showing and calling attention to the comparatively small amount of damage done by the bullet in its passage through one orbit to the other.

CHICAGO OPHTHALMOLOGICAL AND OTOLOGICAL SOCIETY.

A regular meeting was held May 8th, with Dr. Wescott in the chair.

Dr. Richard S. Pattillo reported *two cases of congenital abnormalities.*

Father, aged 33; mother, aged 33. Both healthy. No history or evidence of syphilis present. They have never had any trouble with their eyes; vision normal. The only point of interest is that they are second cousins. They have three children, two of whom are present. The second, a girl, aged 7, has quite prominent eyes, very large, with irises and corneæ clear; vision 20/30 in both eyes.

John C., aged 8. At birth the corneæ were grayish white, so that the pupils could not be seen. When he was three weeks old they could be dimly made out, and at six weeks the right cornea became normal, but the eye was much enlarged. In about three months the left cornea became clear. When he was 3 years of age the right became blood red and remained in this condition for four months, when it became again clear, vision being lost. Several times since the eye has been filled with blood, but after a short time this was absorbed. Within the past month a hemorrhage into the globe has occurred.

Present condition, April 27, 1900: Right eye. Buphthalmos is marked. Cornea clear, large and oval in shape, the anterior chamber very deep, iris very large and oval, pupil even but dilated. The lens is calcareous, small and tilted to the nasal side; the retina is detached and pushed forward above; remains of former hemorrhages can be seen in the vitreous. Tension normal; vision not equal to light perception; complains of no pain.

Left eye. The cornea and iris are very large and oval in shape, and the eye has a very staring appearance. Tension is normal. Vision 20/40, not improved by glasses.

Lillian K., aged 4½ years. At birth the eyes had a grayish, scum-like appearance, similar to the condition noticed in her brother's eyes when he was born. Her corneæ never cleared, as in his case, but remained as at birth, and vision has only been equal to reaching for large objects very near her and to tell colors.

Present condition, both eyes alike: Corneæ large, oval and very hazy.

Slight outline of the pupils, which are much enlarged, can be dimly seen. Sclera bluish-white in appearance, covered with numerous blood-vessels and transmitting light when the ophthalmoscope is used.

Dr. Ware referred to a similar case which had come under his observation, and upon whom he performed a free iridectomy. The case was hopeless, and, owing to complete blindness ensuing, the boy was sent to an asylum, where he has been getting along very well in his studies.

Dr. Henry Gradle showed a patient who had her right eye removed a year ago, and got along quite well until February, 1899, when the sight in the left eye became dim. She has been under his observation since last January, and her vision has varied considerably since that time. On some days sight is quite distinct. The field of vision is normal, although at times it appears to be slightly encroached upon. The right socket is normal. The left eye appears to be normal from a distance, but on closer inspection the cornea is dull, and there is slight vascular irritation on long exposure to light. By using a magnifier a series of streaks, variable in number and direction, are seen on the cornea. Some days there are very few, and on others there are very many. The streaks are seen to be irregular, sometimes long, with a distinct furrow, not branching like dendritic keratitis. The iris is a trifle more sluggish than normal. The pupil is of normal size. Glaucoma is out of the question, as there is no symptom of it. An excavation in the nerve head can be seen, which is deep on the nasal side, sloping on the temporal side from above and below. The color of the nerve is not changed. Eserine and pilocarpine did not help him out any. Homatropine and dilute atropine solution and protargol were tried, but they were all useless. The striæ seemed less when using a dilute silver solution, but it had to be discontinued after a week, as it became irritative. Salicylate of soda treatment was futile.

Dr. Cassius D. Wescott said he had a similar case in a man some years ago. He had been a civil engineer, and was exposed to wind and dust storms, which might account for the corneal trouble. The lesions or striæ were identical with those observed in the case reported. Treatment resulted in practically nothing, the condition varying on different days. The hyperemia was limited to the palpebral conjunctiva.

Dr. J. E. Colburn referred to a similar case in his practice, in which little blisters formed in the cornea, which became so painful that the eye had to be enucleated. The blisters would appear suddenly and occasionally disappear equally suddenly. The appearance of the eye was exactly the same as in Dr. Gradle's case. After cauterizing with the actual

cautery, there would be no recurrence of the striæ and blisters for three or four weeks. The case was reported at the time as one of bullous keratitis.

Dr. T. A. Woodruff presented three cases showing *well-marked changes in the fundi of a whole family*, with the exception of one son, who is now in a sanitarium, but who from the history probably presents similar lesions of his optic nerves. These changes are undoubtedly coincident with or secondary to lesions of the central nervous system, but strange to say the central disease seems to be quite distinct in each. Indeed, the family presents a good example of the ravages of syphilis, hereditary and acquired, upon the ocular nervous apparatus.

The mother, aged 53, gives a history of syphilis contracted from her husband, and a rash lasting several months, when pregnant with first child. She, together with son, aged 22, presents well-marked ataxic and Romberg symptoms, with atrophy of optic nerves in both cases. Vision of right eye in each, hand movements. In left eye, mother, 20/100; son, = 5/200. F. of V. show marked contraction of field for white, with doubtful color perception.

Son's symptoms began with hesitancy in speech between eight and ten years of age.

The daughter, aged 18, had hydrocephalus when eighteen months old, from which she recovered, and otherwise in good health, until about one year ago, when she had three "strokes of paralysis" inside of five months. Memory now affected, and some difficulty in talking.

Pupils are active, and knee-jerks somewhat exaggerated. Vision, 20/30, and J 1 with difficulty in both eyes. On examination with the ophthalmoscope there is found present in both eyes a disseminated choroiditis and commencing optic atrophy. Her field of vision for white, green and red are markedly contracted, but no central scotomata are present. The pupils in this case were dilated with two drops of a half per cent solution of euphthalmine and cocaine, almost maximum dilatation taking place inside of twenty minutes.

Discussion.—Dr. Casey A. Wood referred to the use of euphthalmine as a mydriatic. It was originally used in a 5 or 10 per cent solution. He combines cocaine with euphthalmine, two drops of a one-half per cent solution of each instilled every 5 minutes for a quarter of an hour will be effective, and the results of this mixture are better than with euphthalmine alone. It produces a fuller mydriasis and passes off in a shorter time, but not as quickly as cocaine alone. Cocaine acts on the

epithelium of the cornea, so that any drug combined with it is absorbed more rapidly.

Dr. C. P. Pinckard said that it was claimed for euphthalmine that it does not affect the ciliary muscle. The advantages over cocaine in addition to the above seem to be that it does not affect the cornea, and it is non-poisonous.

Dr. Casey Wood presented a *case of Electro-Magnetic Extraction of a Piece of Steel from the Retina*.

A. S., aged 43, blacksmith in a manufactory; never had any trouble with his eyes or defect of vision, except that due to foreign bodies in the conjunctival sac or cornea, until March 19, 1900, when, while working with a steel axle, a second workman hit the metal with a large hammer. A piece of steel flew off and hit his *left eye*. Patient had very little pain at the time, and, for that matter, has had none since. Dr. Wood saw him the next day after the accident. There was no injury to the lids; considerable scleral and ciliary injection, and vision was barely light perception. Right eye entirely normal. A semilunar wound, 3 or 4 mm. in length, whose edges were stained by potassic fluorescein, occupied the upper half of the cornea, encroaching upon the superior third of the pupillary area. A. C. shallow, and partially filled with lens matter. Iris engaged in the wound at two points; pupil irregular and semidilated; lens opaque and protruding into the anterior chamber. There was no view of the fundus to be had. The conjunctival sac was irrigated and sterile vaseline applied to the eyelashes, an occlusive bandage applied, and the man sent to the skiagrapher. Mr. Fuchs gave it as his opinion, after spending the afternoon in the investigation, that there was a foreign body in the posterior part of the eyeball, and that it was probably lodged in the coats of the eye. As Dr. Wood wished, for obvious reasons, to remove the steel as soon as possible, he had the patient anesthetized and operated upon him the next morning. More lenticular masses had meantime come forward into the anterior chamber, and it did not seem feasible to operate through the original wound. Under careful aseptic precautions he held the end of a Snell electro-magnet against the center of the cornea for a couple of minutes, hoping to draw the piece of steel (which he believed to be large) forward. Here was a case where, had it been possible, he would certainly have availed himself of Dr. Fisher's kind invitation, and have employed the Haab magnet for this purpose, and believed it would have been of the greatest utility.

With a Graefe knife he made an incision within the clear cornea, involving its upper third, and, pushing aside the iris, managed first of all to

extract, without much vitreous loss, most of the disorganized lens matter. He then passed one of the largest points of the magnet deep into the vitreous to the point of lodgment of the metal as indicated by the skiagraph, trying to avoid, as much as possible, churning of the vitreous. After two unsuccessful attempts he drew forth the violin-shaped fragment he now passed round. It is about $\frac{1}{2}$ mm. thick, 6 mm. long, 3 mm. wide at its thickest and 1 mm. at its narrowest part, and weighs 17.9 mgr. Attached to it was a small, fibrinous, dark brownish clot, part blood, part rust-stained vitreous. There was no appearance of retinal substance about it. There was very little vitreous lost, and no subsequent hemorrhage. The eye since the operation has done well. There is no tenderness, no pain, but very little bulbar injection, and both wounds healed kindly. Although atropine was vigorously employed, the pupil is still partially undilated, and attached to floating lens matter and capsular remains. Tension is normal, and the right eye is free of irritation. The procedure was undertaken as an alternative for enucleation.

Discussion.—Dr. Frank Allport took the opportunity to report a few of his own cases of foreign bodies in the eye. The first case showed a traumatic cataract, and the track of a foreign body could be seen through the lens. The body was found in the posterior part of the lens. An iridectomy was made and a small magnet introduced into the anterior chamber with the expectation of removing the foreign body before taking out the lens. A very small piece of steel was drawn out, and then the lens extracted. Three days after the operation the patient complained of much pain during the night. On removing the bandage an intraocular hemorrhage was found, followed in two days by a second hemorrhage. A free opening was then made in the cornea, the blood evacuated, and the patient made an uneventful and beautiful recovery. The hemorrhage was in the anterior chamber. The other case was also one of a piece of steel in the eye. The surgeon who first saw the case dressed it carefully, and got a complete closure of the scleroidal wound. A skiagraph showed the foreign body in the back of the eye, and also a dislocated lens.

(A full report of these cases with illustrations will be found on pages 282 and 290.)

Dr. C. P. Pinckard related a case in which a small piece of steel was lodged in the lens for many years. The capsule had closed, but the lens was opaque, showing a very slight brown stain at the point of lodgment of the body. A small incision was made in the cornea, the lens capsule opened, and the lens substance and foreign body sucked out with a Teale instrument.

Dr. C. M. Robertson, of Davenport, Iowa: Dr. Wood has brought up the question as to whether we should enucleate in cases with steel in the eye, or whether we shall try and save the globe, thereby having a result better than an artificial eye, by trying to extract the foreign body and save the eyeball. He reported the following case:

F. B., male, aged 19, was walking along the street where some young boys were exploding cartridges by placing the shell on an iron rail and letting fall upon it another rail of iron. A piece of shell flew, striking him in the left eye, just over the insertion of the internal rectus muscle, penetrating the globe. This occurred on the 8th of April. On the day following the boy presented himself at Dr. Robertson's office, who found the wound was a clean cut extending from before backward to the extent of 6 or 7 mm. The pupil was dilated, having been treated with atropia and a bandage by his own physician. The interior of the eye showed a considerable mass of exudate at the inner quadrant. Well behind, in a straight line from the incision, was seen a wound in the retina, which he supposed was the wound made by the brass as it passed into the post-orbital space. The wound in the posterior part of the retina was too cloudy to make sure that the foreign body had passed through the eye. An effort was made to extract it with a pair of forceps, but failed in the result. The eye was therefore temporized with and the symptoms watched until the 28th, when at the inner edge of the iris there appeared a small projection of exudate on the anterior surface of the lens just at the pupillary border. This by the next morning had increased in size, and behind the edge of the iris the luster of the brass could be seen. The patient was taken to the hospital and the foreign body extracted through the pupil. During the operation a considerable amount of vitreous escaped from the original wound. The exudate was removed and the eye dressed with sterilized vaseline and a bandage. The eye made an uneventful recovery, save for a temporary traumatic iritis, which lasted for twenty-four hours; a traumatic cataract developed, which can be removed later, and a very good eyeball remains, which will be better than an artificial eye. No X-ray being available, the brass could not be located, and was therefore left in the eye three weeks, but no sympathetic signs appeared, nor have any since. The piece of brass measures 6 by 10 mm.

Dr. Robertson thinks that where a piece of steel was known to have passed through the eye and was embedded in the post-orbital tissue, there was no indication for its removal, nor should there be any trouble arising from leaving it alone. It would become encysted and remain for the balance of the patient's life without trouble.

AT the annual meeting of the Medical Society of the State of New York, three interesting papers were read by D. B. St. John Roosa, A. E. Davis, and Frank Van Fleet. Dr. Roosa's paper was on the subject of "Strabismus." He stated that at the time of presenting his communication on this subject last year he had done only six operations by Panas' method, but now he had performed it twenty-four times, and his colleagues in the hospital had done it twenty-two times. This gave a total of forty-six operations, but of this number only two still required further operation. This operation made it possible, in almost every instance, to cure strabismus at one operation. The operation consisted essentially in stretching the muscles before dividing them. The other important features consisted in doing the operation at one sitting, and in insisting that the operation should not be done on ambulance cases, but only at the hospital or at the patient's home. He now felt that he could confidently recommend this operation of Panas in both convergent and divergent squint, with the assurance that in 95 per cent of the cases the correction of the strabismus could be secured at one operation.

Dr. Davis' subject was "Non-operative Treatment of Strabismus." The author's principal points were: (1) Hypermetropia and hypermetropic astigmatism were the causes of convergent strabismus in the majority of cases; (2) as contributory causes might be mentioned, (a) difference in acuteness of vision, either congenital or acquired, but usually the latter, and due to an unequal state of refraction in the eyes, and (b) anything that interfered with the acuteness of vision, such as opacities on the cornea and in the vitreous or lens; (3) faulty structure, insertion, or innervation of the extrinsic muscles of the eye may cause convergent strabismus; (4) the amblyopia present in most cases of convergent strabismus he believed to be functional and acquired, and not congenital except rarely; (5) the non-operative treatment of strabismus (the use of atropine, the exclusion pad, and, in patients old enough, glasses and the use of the stereoscope) should be begun as soon as the squint is observed. Just as soon as the non-operative treatment ceased to improve the condition of the squint, it was time to operate. Delay in operating after this time was not only useless but harmful, because the habit of suppressing the image in the squinting eye became fixed, and the amblyopia was made worse. After the eyes had been operated on, the use of the stereoscope, bar reading, the pad and glasses were of the utmost value in completing the treatment by maintaining parallelism and establishing single binocular vision. The rational treatment of strabismus meant its early treatment.

Dr. Van Fleet's subject was "The Differentiation and Treatment of Ocular Affections Commonly Met with in Family Practice."

He divided cases of conjunctivitis into four classes, viz: (1) simple; (2) gonorrhœal; (3) trachomatous; (4) traumatic. All of these varieties were purulent and contagious, unless it might be the traumatic form, in which the conjunctivitis was mild, and in which only a soothing eye lotion would be required; in the more severe ones a solution of nitrate of silver would be needed, and possibly also the application of iced cloths. Nitrate-of-silver solution was best applied on a cotton-wrapped applicator, and, if the conjunctivitis was mild, it was better not to exceed a strength of five grains to the ounce. In gonorrhœal conjunctivitis Dr. Van Fleet said he made use of a solution of the strength of twenty to forty grains to the ounce, applied as early as possible and followed by the use of iced cloths. In trachomatous and follicular conjunctivitis expression shortened the duration of the disease. After the acute stage sulphate of copper should be applied. Nitrate of silver, alum and sulphate of copper all gave good results, but should not be used continuously for too long a time, as they then aggravated the trouble. In chronic cases he recommended the alternate use of alum and sulphate of copper. As to the diagnosis, the speaker said that conjunctivitis was most likely to be confounded with keratitis, iritis, scleritis and glaucoma. In conjunctivitis the discharge of pus was characteristic, and, as distinguished from keratitis, there were, in addition, swelling and redness. In keratitis there was a loss of brilliancy of the cornea which was not observed in conjunctivitis, and in the majority of cases of keratitis there was an opacity of the cornea. In differentiating from glaucoma the size of the pupil was an important guide; in keratitis the pupil was contracted, while in glaucoma it was dilated. In keratitis the irritation temporarily disappeared under cocaine, whereas in iritis cocaine had little or no effect. The pain was generally more pronounced in iritis and glaucoma than in keratitis. The increased tension of the eyeball in glaucoma was also a characteristic sign. In conjunctivitis ice applied gave relief; in keratitis and iritis hot applications were generally more grateful to the patient. Episcleritis and scleritis were often met with in private practice as accompaniments of rheumatism and gout, and they were best treated by the use of atropine and hot water locally, and by the internal administration of salicylate of sodium, cathartics and alkaline waters.

NEWS ITEMS.

*Personals and items of interest should be sent to
Dr. Frank Allport, 92 State St., Chicago.*

PROFESSOR WOLFRING, of Warsaw, has resigned.

PROF. CARL MELLINGER, of Basel, has been appointed Professor in Ordinary.

DR. A. GRUENOUW, of Breslau, has received the title of Professor Extraordinary.

THE German Ophthalmological Society will meet at Heidelberg September 13, 14 and 15.

AN oculist in Chicago recently received a letter addressed to Professor of Cataracts of the Eye.

DRS. GRADLE AND ALLPORT have recently received appointments as ophthalmologists and aurists to the Wesley Methodist Hospital in Chicago.

BARON ADOLPHE DE ROTHSCHILD, who recently died in Paris, left over 25,000,000 francs for charitable purposes. Six million francs are set aside for the founding of an establishment for the treatment of diseases of the eye.

THE death is reported of Mrs. Emma A. Keep-Schley, widow of Henry Keep, former President of the New York Central Railroad, who recently died in New York City, aged 72. She presented the New York Ophthalmological Hospital with \$250,000.

OPHTHALMOLOGICAL AND OTOLOGICAL SOCIETY.—At the annual meeting of this Society, held recently in Washington, D. C., the following officers were elected: President, S. O. Richey; Vice-President, Secretary and Treasurer, Anton Coe, vice W. K. Butler, who resigned, having filled that office for the past four years.

PROF. C. SCHWEIGGER has resigned the chair of Ophthalmology at the University of Berlin, which he has held since the death of A. V. Graefe in 1870. He will continue his work as the editor of the German edition of the *Archives of Ophthalmology*. Prof. J. von Michel, of Wurzburg, has been appointed his successor.

DR. JAMES THORINGTON ELECTED PROFESSOR AT THE POLYCLINIC.—The board of trustees of the Philadelphia Polyclinic and College for Graduates in Medicine took action at a recent meeting looking to the enlargement of the Department of Ophthalmology. A fourth chair was created in that department, and Dr. James Thorington was elected Professor of Diseases of the Eye to fill the new chair.

MEDICAL AND CHIRURGICAL FACULTY OF MARYLAND.—The next annual meeting of this society will be held the last Tuesday, Wednesday and Thursday in April, 1901. The following are the officers for the ensuing year: President, Dr. Samuel Theobald; Vice-Presidents, Drs. Samuel T. Earle, Jr., and J. B. R. Purnell; Secretary, Dr. J. Williams Lord; Treasurer, Dr. Thomas A. Ashby.

DR. BOERNE BETTMAN, the well known Chicago oculist who was obliged to relinquish practice several years ago and go abroad for his health, has recently returned. Although he is in many respects better than he was, Dr. Bettman does not yet feel equal to the task of resuming his college and hospital work, nor does he intend to engage in private practice. He will probably go to Mackinaw for the summer, where we trust he will still further improve.

INSOMNIA DUE TO DISTURBANCES IN OCULAR REFRACTION—A. TROUSSEAU.—Ocular disturbances should be thought of when a young person is affected with insomnia at a period of excessive studying or other exertion, with headache on waking and better sleep after days of comparative rest of the eyes, as on Sunday. Trousseau relates a number of instances in which the patients had applied to physicians and neurologists in vain, and were finally cured in a few hours with appropriate eye-glasses.

CENSUS OF BLIND CHILDREN.—The number of blind children in Chicago, as computed by Supervisor of Census S. D. Griffin and Louis Larson, assistant to the superintendent of schools, now reaches the total of 297, including 160 boys and 137 girls. There are still a number of

schools to hear from, but it is not expected that the figures from these will swell the total to any great extent. It is believed that one school on each side of the city will be ample for the needs of the blind. These schools will not be opened until next September.

THE meeting of the American Medical Association will be held at Atlantic City, N. J., from June 5th to 8th, inclusive. The headquarters of the Ophthalmological Section will be at Haddon Hall. The Ophthalmological Sessions will be held in the assembly room of the Windsor Hotel. The banquet will be at 7:30 p. m. Tuesday, June 5th, at the Grand Atlantic Hotel. The accompanying ladies of the members of the Section of Ophthalmology are invited to attend the section dinner, and an exceptionally select and scientific program has been completed, and one of the largest gatherings of ophthalmologists ever held in this country has been assured.

DEBECK reports several cases of eye trouble, among them one of gouging in a fight, where he inserted a glass ball in the empty eye-socket for cosmetic purposes, with good results. The patient afterward wore an artificial eye with the most satisfactory deceptive effect. He thinks it the only case in which an artificial vitreous has been inserted in a traumatic case twenty-four hours after injury with success. Another instance reported is that of complete enucleation of the eye by a jet of water from a nozzle connected with two lines of hose by a Siamese coupling. The nozzle got away from those handling it, and the jet struck the man squarely in the face, at a distance of three or four feet, and no trace of the eyeball could be found. It was completely enucleated by the water. The patient made a satisfactory recovery. He also reports other cases of interest.

A VERY useful little book is called "The Ophthalmic Patient," written by Percy Fridenberg, M.D., of New York City, and edited by Macmillan Co. It is dedicated to Ludwig Laquer, of the Strassburg University. It has 304 pages and a good index, is beautifully printed upon first-class paper, and is profusely illustrated with the most useful and practical kind of illustrations. Everything that an ophthalmic surgeon can possibly use in the way of instruments, appliances, procedures, etc., will be found comprehensively illustrated in this useful little book. It is especially useful for beginners in ophthalmology, but will also be found to be useful to the mature specialist, and especially for those gentlemen living far away

from the centers of ophthalmic teaching who desire to keep fully abreast with the times. The book sells at \$1.50, and we commend and recommend it to all.

"SPECS AND SPECULATION."—(Holman F. Day in the *Lewiston Journal*).—The traveling eye doctor came along.

The man of the house was out in the barn sorting potatoes for seed. His wife told the doctor that she guessed her husband wanted some glasses, for he had been complaining about his old ones. So she went out and called him. He came slowly in through the shed walk, dusting the grime off his hands. "Yes," said he to the doctor, "I have been having quite a tussle with them eyes of mine. Guess I've either got to have some new specs or git tongs to hold my paper with. Hain't got much ready money jest now. Jest got up March hill, ye see, and it's seed and fertilizer and all that to buy. But trot out yer glasses, mister, and we'll see if we can trade."

So the doctor opened his case and commenced to try on the glasses.

As each was fitted to his nose, the farmer first looked gravely onto the page of the weekly paper and then off at the wall.

"No, that ain't it yet," he would say.

At last he seemed to get discouraged. "I don't believe yqu've got anything in your stock," said he, "that's goin' to do me any good. Guess we might 's well stop tryin'."

Quoth the doctor: "Well, try these. It's the last pair we haven't tested. If they don't fit we'll call it a bad job."

And he carefully placed the glasses astride the farmer's nose and passed the paper over to him.

The farmer read for a while in silent delight, and then looked up at the doctor.

"Complete!" cried the farmer, ecstatically. "I hain't seen so well to read for years. These are jest what I call fust-class.

"I'm glad I suited you," said the doctor, as he tucked \$3 in his vest pocket and hastened away. "I thought I could fix you before we got done."

"And he did fix me," said the farmer, telling about the matter the other day.

"When I went to look at them glasses after supper, blamed if I didn't find that they were nothin' but jest bows—not a speck of glass in either one of 'em. It cost me \$3 to find out that my old eyes are pretty good to read with, after all."

THE OPHTHALMIC RECORD

*A MONTHLY REVIEW OF THE PROGRESS OF
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No. 7. NEW SERIES.

ORIGINAL ARTICLES.

AN INSURANCE CASE IN WHICH OSSIFICATION OF THE CHOROID LEAD TO THE IDENTIFICATION OF THE BODY.

BY ROBERT L. RANDOLPH, M.D.

BALTIMORE, MD.

Early in October, five years ago, a well-known wholesale clothier of Baltimore telegraphed to his wife from a point in Canada to meet him on a Saturday afternoon at four o'clock in the Grand Central Station, New York. She was there on time, but failed to find her husband. She ascertained from the sleeping-car conductor and porter that her husband had occupied a berth on the train. Some of his clothes were found in the berth. The porter said that he had seen Mr. A—— passing through the car door presumably on his way to the car ahead and that the train at this time was crossing the Niagara River. The following week the wife appeared at the offices of the insurance companies and claimed the insurance, which the companies refused till more conclusive evidence of the man's death was forthcoming. Weeks passed and still the family were unable to bring forward any absolute proof of Mr. A's death. A minute description of him was put in all the papers in that section of the country, rewards

were offered and notices posted throughout a considerable stretch of country along the Niagara River.

Nine months after Mr. A's disappearance his wife received notice that the body had been recovered and that all this time it had been in the river. The body was brought to Baltimore, and, as it was in an advanced stage of decomposition, it was promptly buried. It might be well to state here that when found the body had on a collar (which was marked with his initials), drawers, and an undershirt. The companies then came forward and claimed the right to inspect the body, at the same time asserting that the latter in all likelihood was unrecognizable from having been nine months under water. I need not go into the details of the autopsy, which was made by a prominent pathologist in Baltimore. It can be easily imagined, however, that a body which had been exposed to such conditions would have lost many of the physical characteristics peculiar to it before death. It may be sufficient for me to say, however, that much of the flesh on the face and head was gone, and this brings me to the eyes, which were submitted to me for examination.

It was remembered by his family that he had lost his left eye as a child from a blow with a stick. This eye, then, had been blind for many years, and I elicited the fact that he had a whitish appearance in the pupil which, no doubt, was a shrunken lens capsule, probably the result of a traumatic cataract.

The question, then, was if it were possible to find in the left eye anything which would indicate that the man had been blind in that eye for most of his life. The following was the result of my examination:

Right Eye: Cornea perfectly and uniformly opaque. This opacity was remarkable for its density, and evidently involved the entire substance proper of the cornea as well as the epithelial layers. The cornea was sunken in the middle and this was explained by the loss of the intraocular fluids, a fact revealed when the eyeball was opened. The eyeball was soft and mushy and its sides could be pressed together at any two opposite points. On opening the eyeball there was no evidence of either lens or of vitreous body. The retina and choroid were not separable, but formed a dark, indistinguishable mass, which went to pieces when picked up with the forceps. These two coats seemed to be absolutely disorganized. The iris seemed devoid of pigment and was recognized as a delicate, colorless membrane resting

against the posterior surface of the cornea. This membrane, too, like the retina and choroid, was rotten.

Left Eye: The cornea was hazy and faintly transparent over an area comprising about 2-3 of its entire surface. This transparency allowed one to see beyond, and on pressing the eyeball at its posterior pole a grayish mass could be seen to advance towards the cornea. This mass occupied the position of the crystalline lens. The entire periphery of the cornea was opaque. This opacity was not sharply cut as to its inner borders, as is the case with the arcus senilis, but had a ragged inner edge with here and there a more marked jutting out into the clearer cornea. This eyeball, too, was collapsed like its fellow. On cutting open the eyeball the retina and choroid were found in a condition similar to that of the right eye. The iris lay against the posterior surface of the cornea and appeared devoid of pigment. When picked up the iris fell to pieces. The grayish mass mentioned as being visible through the cornea proved to be a small body about the size of a grain of rice, of irregular shape and nearly solid. In the posterior part of the eye a hard substance was felt. This substance was apparently loose and lying in the disorganized choroid and retina. It was picked up with the forceps and proved to be a thin sheet of what was evidently bone (ossification of the choroid). It was 7-16 of an inch long and about 3-16 of an inch wide and posteriorly it was perforated by a round hole, through which passed a shrunken optic nerve.

Nothing further was noteworthy in this eye. The striking points about this part of the examination were, first, the dense and uniform opacity of the right cornea and, second, the existence of the plate of bone in the posterior part of the left eyeball.

Microscopic Examination: Cornea of the right eye. Here it was impossible to get any reliable differential stain. The tissue could be recognized as that of the cornea, but beyond this nothing could be said of its ante-mortem condition.

Left Cornea: Here there was the same want of definiteness as was seen in the right eye. *Grayish mass in the left eyeball.* This was composed of a cloudy round and rather large centre made up of bands looking like the layers of the lens. This mass was surrounded by clumps of pigment. All that could be said of this mass was that it resembled lens substance more than it did anything else. The retina, choroid and iris stained so diffusely that nothing of importance could

be made out. This was the case in both eyes. It was impossible to demonstrate the existence of cataract. The substance removed from the left eyeball was shown under the microscope to be bone.

It will be seen from this, then, that while the small body of irregular shape and about the size of a grain of rice, might reasonably be regarded as a shrunk lens, the result of a traumatic inflammation, it could not by itself be regarded as positive evidence that the man had been blind for many years, for such a condition of the lens can be brought about in probably one or two years. With the discovery, however, of the plate of bone, there was immediately obtained unmistakable evidence that the man had been blind in that eye for many years before his death. In those cases of ossification of the choroid which I have seen the patients had been blind from early childhood. This conclusive proof, then, that the left eye had been blind for a long time was evidence enough, in the opinion of the insurance companies, to establish the identity of the body, and accordingly the money was immediately paid.

It is clear from all this that the microscopic examination of an eye which has been exposed to such conditions is not apt to reveal much of any value owing to the post-mortem changes in the cell structure. Indeed the disintegration of the various parts of the eye is so complete or, rather, advanced, that it is impossible to draw any conclusions as to the ante-mortem condition, even as to the color of the iris. The effect of the water upon the eye for so long a period is to completely obliterate ante-mortem characteristics, with one exception—ossification of the choroid. There was present in this case, then, the only ocular condition which would have been valuable in establishing the identity of the body.

GLAUCOMA WITH EXTENSIVE RETINAL HEMORRHAGES FROM HOMATROPINE.

BY H. GIFFORD, M. D.

OMAHA, NEB.

Miss I. B., age 21, consulted me Sept. 21, 1898, on account of asthenopic symptoms. She had plus 4D for constant use, and on September 27, under the influence of homatropine, she showed 5D.H. in the right eye and 4.5D.H. in the left with 0.25D astigmatism each eye. Vision = 20 / 20 — each eye. She left the office after the test

was finished about 2 P. M., and I heard nothing more from her until about 3 P. M., September 29th, when I received word that her eyes had been paining her ever since the night of the day that she left the office. The pain had been so severe on getting up that she vomited, and the sight had been poor since she woke up on the morning of the 28th. I went at once to the house, and found, in each eye, the pupils slightly dilated, iris and conjunctiva congested, cornea slightly hazy, vitreous so hazy that no details of fundus could be seen, T. plus 1, and vision reduced to hand movements at 3-5 ft. I at once ordered hot applications, 15 grs. of salicylate of sodium every half hour and one drop of a solution of pilocarpine and cocaine (2 grs. of the first and 1 gr. of the second in a drachm of water) every half hour until I should see her again. I returned after three hours and found the pupils small, the eyes soft, the pain gone and the sight much better. Active medication was then stopped except for the use of the pilocarpine solution once more that night. The next day the eyes were still soft, and she said the sight was much better. I think pilocarpine was used once or twice during this day, but as the conveniences were poor no ophthalmoscopic examination was made until October 1st, when I found that the right eye had one very large hemorrhage and numerous small ones at the center of the fundus, while the left eye had a number of small retinal hemorrhages in and around the macula region. The first record of the vision that I have is for October 10th, when that of R. E. was 20 / 200, of L. E. 20 / 30. The blood in the retina was gradually absorbed, leaving slight irregularities in the pigment, particularly in the right eye, and the vision gradually rose to 20 / 70 — in R. E., and 20 / 20 — in L. E. Since the use of the homatropine and pilocarpine the right eye always seemed a little softer than the left, and on Jan. 24, 1899, she returned, saying that for some weeks she had seen colored rings around a light in the evening with the left eye and that the eye had pained and the vision seemed poor at such times. The tension of the left eye seemed about normal, but it was distinctly harder than the right eye which seemed to be too soft. She was given pilocarpine to use at night and this stopped the trouble as long as she used it. But on omitting it she had another attack and came to my house one evening while the eye was still troubling her. I found the left cornea slightly hazy, pupil slightly irregular but freely movable, the fundus rather dim but not enough to prevent the disk from being

plainly seen. There was a distinct arterial pulse with T. plus 1. The right eye was soft and clear. After this I saw the patient at intervals for about a year. When she used pilocarpine regularly she had no trouble with the eyes, but if she omitted it for several days and got tired she would have a return of the glaucomatous symptoms. But as the disk and the field remained normal and the eyesight remained about the same (R. E. 20 / 70 and L. E. 20 / 30+) an operation was postponed. I expected to keep the case under observation and report it only after a definite result had been reached, but, as the patient disappeared for some months, to be heard from again only through the medium of an attorney who requested a settlement for damages, I have thought best to publish it for the sake of the warning which it conveys.

I think it altogether probable that if this patient had lived at a greater distance, the result would have been even more disastrous. It is not unlikely that her sight would have been lost entirely.

At present I put 1 or 2 drops of a 1 per cent eserine solution into every eye which I have tested under atropine or homatropine, before the patient leaves the office, with instructions to return the next day if the near vision is not entirely normal; or, in the case of patients who live at a distance, a few drops of eserine solution are given them in a small vial to be used the next day.

Priestly Smith, in his book on glaucoma (p. 132), says in an off-hand way: "atropine, homatropine, duboisine and cocaine, in short, all the drugs which dilate the pupil, must be included among the exciting causes of primary glaucoma." Nevertheless, at the time this case occurred the only report of glaucoma from homatropine which I can find to have been published is that of Sachs (*Centralblatt fuer Augenheilkunde*, Sept., 1884). His patient was a man 58 years old, who had had some obscure symptoms indicating the possibility of previous slight attacks of glaucoma. He was given a single drop of a 1 per cent solution of homatropine for diagnostic purposes and returned after 26 hours with a well marked case of acute glaucoma in the eye which had received the drop. Prompt and permanent recovery occurred on the use of eserine, no injury to the sight remaining. Recently Shears (*Ophthalmic Record*, Mch., 1900, p. 150) has reported another case in a woman aged 52. One or two drops of a 1 per cent homatropine solution were put into the right eye. When she returned to the hospital a week later she had all the sight of acute glaucoma

and could just count fingers. Pain, vomiting and loss of sight came on the same evening that the homatropine was used. Eserine and leeches were tried without effect and an iridectomy was done which restored the vision to the condition which existed before the homatropine was used.

The unusual features of my case are the age of the patient, the occurrence of extensive retinal hemorrhages and the persistence of glaucomatous attacks for a year or more after the homatropine was used. It is not improbable that if the tension had been reduced more gradually the retinal hemorrhages and the consequent injury to the sight of the right eye might have been avoided, but as the glaucoma had existed for 48 hours I felt like reducing the tension as quickly as possible. In another similar case I should proceed more slowly.

VISION AND SEASICKNESS.

ARTHUR F. SUMNER, M. D.

CONCORD, N. H.

Illustrated.

Recently the writer has been thinking over the subject of seasickness. He recalls that much has been written upon the theme by every kind of a specialist, and of late by aurists. This latter comes about by a process of reasoning that connects the semi-circular canals, with their function of sustaining the equilibrium of the body, with the internal ear. The ear belongs to the aurist. Therefore as seasickness is a departure from the normal equilibrium, this field of investigation is his. The writer is an oculist, and confesses to have given the problem of seasickness but scant attention in a scientific way, but a few ideas have come to the surface following upon an incidence that recently occurred in his city, and for the time being he will claim the field.

The spring freshet was an exceedingly vigorous one. The river overflowed its banks more widely and energetically than for years past. The house of the picture was lifted from its foundation of shifting sand and finally came to rest in the position as seen in the picture. The reader will observe that the house is in the position of a vessel at sea when the stern goes down and the side rolls to port at the same time. Those going into the house after the flood met with a novel

sensation. In moving around the inside they soon became dizzy, sick to the stomach, and hastily sought the outside terra firma. It was not very long before daily crowds sought the place in order to experience the sensation of seasickness in a house. Some of the investigators were so thoroughly stirred up in the region of the stomach that emesis was a natural consequence. The house soon got the expressive name of "jag-house".

The writer was one of the crowd. The sensation was surely like seasickness. The peculiar angles of the floors and ceilings; the unusual inclination of walls and windows and doors were confusing. When the effort was made to walk across the rooms then occurred the funniest part of it all; one became so dizzy and nauseated that one reeled about and would fail to reach the objective point started for. With the writer this sickness shortly disappeared and did not return upon a subsequent occasion.

In casting about for an explanation, I think the seat of action of the phenomena should be placed wholly within the realm of the psychic. A person's mind has from birth accustomed itself to the visual impression of floors and ceilings as level planes and of walls, windows and doors as perpendicular and all bearing a certain relation to each other. This association of ideas has formed an unconscious standard of how a house should look. To place a person quickly into the house of our picture is to convey to the mind through vision a flood of sensations having unusual relations. These seek to establish, regardless of all else, a new standard. The new and the old come into conflict and in some the struggle is so fierce that profound disturbance of the economy follows, especially of the digestive tract. The writer wishes to extend this theory to seasickness. He maintains that the seat of the trouble is the mind. Dependent upon a flood of conflicting impressions conveyed to the mind through vision. If there are a few exceptions they will prove the above cause as active in the majority.

When one is aboard a steamer he is usually free from sickness in the smooth water of the harbor. When the vessel reaches the ocean swells the horizontals slant and the uprights become oblique with unremitting motion. This strange scene is delivered by vision to the mind to which it is so unreal, as compared to the old standard of such things, that all the psychic force is brought to bear upon the intruding vision. It strives to maintain the old in face of the powerful new. The inflow of the new impressions continue and this struggle for the



association of ideas in the unconscious mind finds its expression in systemic upheaval. The organs supplied by the pneumogastric nerve readily succumb to the mental commotion.

The ease with which the new mental activities harmonize the opposing old ones governs the severity of the attack.

The writer has learned when going to sea that he has the best time when he goes directly to bed and offers no resistance to the motion of the steamer. The swaying stateroom is shut out by closing the eyes. A day of gradually taking in the vision of the new movements is sufficient for the escaping of an attack of sickness.

In carsickness the same idea holds good. Here we have the unusual vision of objects flying towards us, and these impressions, with some people, come into conflict with the standard firmly fixed in mind for such things as trees and fences and ground. This struggle to associate the unusual with the usual results in the well known sickness.

In the sickness so many experience in swinging, and when looking down from great heights, the theory of conflicting mental impressions as a cause of systemic disturbance is applicable.

In the refraction work of the oculist, it is a frequent experience to have patients complain of a like sickness when newly fitted with glasses. This finds its explanation in the same idea of the new visual sensations, produced by the glasses, coming into antagonism and trying to overcome the old unconscious sense of place and things.

If the above theory is true, that through the sense of vision the psychic field is agitated to the point of producing reflexes, how does the treatment of "mal de mere" interest the oculist?

The writer sees no opportunity for him to exercise his skill. The nature of the disturbance is psychic. This subtle influence can be reached only through mental suggestion. The writer has no doubt that hypnotism is the therapeutic means for the successful treatment of this distressing disorder.

HENRY A. POLKINHORN, M. D.

ILLUSTRATED.

Chart A.
RIGHT EYE

FIELD WHITE
FIELD RED
BIOLOGICAL

N
E
S
W
A
L

William H.
July 26 1898

*Read before the Society of Ophthalmologists and Otologists of Washington. D. C.,
March 16, 1900.

In 1866, Von Graefe, and in 1869, Leber, accounted for the disease from clinical observations, by a supposed inflammation in the orbital part of the optic nerve. This suggestion was proven correct some years later by anatomical investigations by Samelsohn first, later by Nettleship, Whithroff, Sachs and others. The results of these investigators showed that there was an increase of nuclei, hypertrophy of connective tissue and a waste of nerve fibre in that area of the optic nerve lying in the optic canal and formed by the papillo-macular bundle.

Chronic retro-bulbar neuritis consists of a variety of forms named after their causative agent, as, tobacco, alcohol, lead, quinine, carbon-disulphide, cocaine, chloral, stramonion leaves, etc.

Of this variety Tobacco Amblyopia holds first place, and is the best representative of the disease.

In writing this paper I do not claim to be able to bring out any new facts in regard to the subject, but merely to outline the disease; state several observations noticed in some forty cases and to bring to your attention a few illustrations.

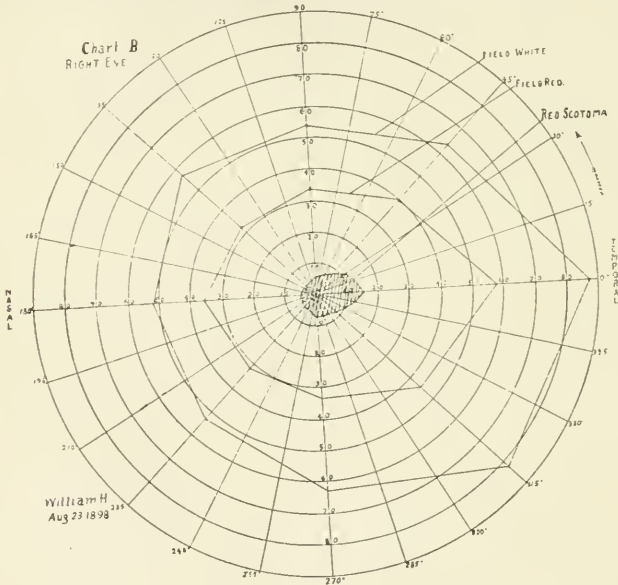
Tobacco Amblyopia comes on insidiously, the patient stating that several months ago he noticed his sight beginning to fail; at first small print became blurred, the failure progressed gradually till he found himself unable to read even large print. Upon looking at a distance everything seems hazy as though seen through a fog. In the early morning or towards evening he sees best. As a rule, the patient has been to all the opticians, but they have failed to give him suitable glasses. There is a history of his being a heavy smoker for years past, and usually a heavy indulger in alcoholic drinks. The tension of the eyeballs is normal and there is no external evidence of a lesion.

Upon examination we find the vision greatly reduced, perhaps 20 / 200 or less, J xiv; glasses do not improve. The ophthalmoscope usually reveals a comparatively healthy fundus, there may be a slight blurring in the outline of the papilla, again the temporal halves of the discs may appear quite atrophied, especially if the case be one of long standing; however, as a rule, both these points are lacking. It is important that the macular be carefully examined to see that no lesion exists there.

Taking the patient's field of vision, we find that for the periphery normal, this part being normal is an important factor. Getting the patient to fix on a white disc we very easily work out a red and green

scotoma, oval in shape and occupying that part of the field corresponding to those fibres of the nerve which pass from the papilla to the macula. The scotoma is often not found on account of too large a colored disc being used; one from three to four m. m. in size is sufficiently large to begin with. Should the patient be color blind for red or green, we may substitute blue or yellow.

The treatment may be summed up in the few words—total abstinence from tobacco and alcohol. However, most frequently the patient is run down in health, so, as a general routine treatment, it is well to give a tonic such as Tr. Ferri Chlor. combined with Tr. Nuc. Vom. Should there be any puffiness about the papilla Pot. Iod. may be substituted for the iron. A weekly Turkish bath and plenty of outdoor exercise will do much toward hastening recovery.



There is seldom any difficulty in making a proper diagnosis. Tobacco Amblyopia has many symptoms in common with several other nerve diseases, such as scotomatous optic atrophy, locomotor ataxia, disseminated sclerosis, non-toxic orbital axial neuritis and various forms of central amblyopias, but the history, ophthalmoscopic examination, peripheral fields, position and shape of scotoma, age of patient, sex, bilateral visual disturbance and the absence of pain, should prevent a mistake in the diagnosis.

The prognosis is good and a rapid cure may be expected provided the case be not too far progressed and the patient will obey instructions.

Case No. 1.—George C., age 41, occupation laborer. Seen first June 30, 1898. Gives the following history: Sight perfect up to four months ago, when he noticed the type blurring upon reading; a few days later he found his distant vision hazy. The failure of vision has been slow, but progressive up to present time. He claims now to be unable to read even large print, and cannot recognize his friends upon passing; when looking in the distance things look smoky. This is constant, although he sees best towards evening. Tried at several opticians to get glasses but failed. For a number of years past has been smoking one-half ounce of strong tobacco daily, using a short clay pipe; drinks about three pints of beer daily.

Y. O. D.=20/50, J xii; V. O. S.=20/50, J xii. Tension normal. Glasses do not improve. The ophthalmoscope shows both papillae to be somewhat pale, physiological cupping both discs; otherwise the fundi appear perfectly normal. With the perimeter the peripheral fields were found to be normal; there is a red and green central scotoma of characteristic shape extending from the papilla to macula lutea. Treatment was routine.

Patient seen a fortnight later, claims improvement; vision was now found to be 20/40 both eyes, Jx. Treatment continued and patient told to return in two weeks. Returning, his vision was now found to be 20/30 minus both eyes, J viii. Patient failed to return later.

Case No. II.—J. R. B., age 53, occupation basket maker, called at the clinic Oct. 15, 1898, with the following history: Health is and has been always good. Sight good up to six months ago, when he for the first time noticed an inability to read, has been for some years past wearing presbyopic glasses. Vision for near and distance grew steadily worse till at present he is unable to read at all; there seems to be a dense fog when looking at a distance. Sight better early in the morning or towards the evening. Complains of no pain. Has had glasses changed several times without benefit; an optician over a month ago advised him to see an oculist.

History of smoking four ounces of strong tobacco weekly for past thirty years; moderate drinker, not indulging more than once a day.

V. O. D.=20/200, J xviii; V. O. S.=15/200, J xix; tension normal. Glasses do not improve. The fundi appear normal save

that the discs seem a little hazy. The perimeter shows fields to be normal periphery; in each field there is a central scotoma for red and green, using a disc 20 m. m. in size, oval in shape.

the discs seem a little hazy. The perimeter shows fields to be normal periphery; in each field there is a central scotoma for red and green, using a disc 20 m. m. in size, oval in shape.

The patient was put upon the routine treatment and told to return in one month, which he did, but claimed no improvement in vision, which upon examination was found to be the same as when first seen. On close questioning patient admits he has substituted chewing for smoking. Told the necessity of giving up tobacco in all its forms and promises to do so.

One month later he returned with sight improved, V both eyes 20/70 with difficulty, J xvi; scotoma somewhat smaller. This case was again seen four weeks later, when the vision for both eyes had increased to 20/40, Jx. The treatment was continued and patient told to return, but failed to do so.

Case No. III.—William H., age 59, occupation gardener. Was seen first July 26, 1898; patient of rather a nervous temperament, but has always enjoyed good health. First noticed sight failing seven weeks ago; it has been rapid and progressive till at present he is unable to read the largest of print and upon looking at a distance things look as though seen through a fog. Claims sight is much better towards evening; no pain about eyes. Gives a history of smoking from four to five ounces shag tobacco weekly for past twenty-five years or more, using a short clay pipe. Drinks about eight glasses beer a day; seldom drinks whisky.

V. R. & L. = 8/200, Jxx, tension normal; glasses do not improve. The ophthalmoscope shows the fundi to be normal. The peripheral fields are normal. There is a marked scotoma for red as shown by Charte A; this scotoma, however, is not of definite characteristic shape.

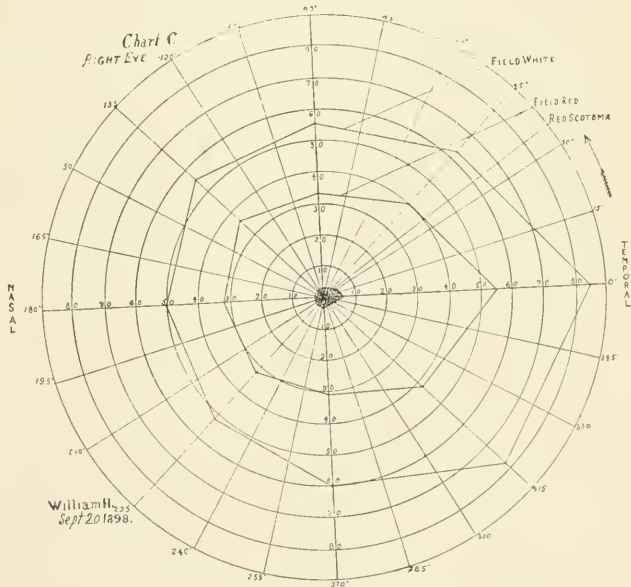
Treatment routine.

Returns in one month and vision now found to be greatly improved, R. & L. 20/200, Jxvi, scotoma smaller, shown by Charte B. I have only shown the chartes of right eye, as those of left are practically the same. One month later further improvement reported. V. O. D. = 20/70, Jxii, V. O. S. = 20/50, Jxii. Charte C shows size of scotoma at this examination.

Patient not again seen for two months, when his vision was found to have increased to R. & L. 20/40 plus, Jviii, no scotoma. Case lost sight of afterwards.

Case No. IV.—J. M., age 45; occupation groceryman. Called at my office last November with the following history: Sight began failing two months ago, has been rapid and progressive, especially in left eye, the vision of which was found to be much worse than the right. Has been for some time past a heavy smoker and drinker.

V. O. D. = 20/50, Jxii; V. O. S. = 20/200, Jxvi. No improvement with glasses. Both fundi normal. The peripheral fields normal; no definite scotoma in right, although color of disc became much more apparent outside of fixation; there was, however, the characteristic central scotoma for red and green in left eye



Patient stated positively he could not give up both smoking and drinking completely, so with the routine treatment he was allowed two glasses of beer daily. Two months later this case had entirely cleared up, vision being restored in full.

As stated before, tobacco amblyopia affects persons most during the prime of life, between forty and fifty years of age. We at times run across cases at a much earlier or later age than this. One case under

my observation was in a patient of 65, while on the other extreme I treated, last September, a young man age 26, who had this disease in a typical form. Several years ago Dr. Snow, of Salt Lake City, showed me a boy sixteen years of age who had this form of amblyopia caused by excessive cigarette smoking.

Most observers state that the vision seldom if ever falls below 20/200, Jxiv. I must take exception to this statement, for I think at least one-half of the cases I have seen have had a reduction of vision below 20/200, and in a number of these as low as 4/200, Jxix.

As to the mode of access the nicotine has to the system, without doubt the greater number of amblyopes use the pipe in smoking. During my stay at the Royal London Ophthalmic Hospital I took record of some forty cases of tobacco poisoning; nearly all were pipe smokers and at least three-fifths of this former number made use of a short clay pipe, called a "nose scorcher" on account of its size, the stem being from 1½ to 2 inches in length. I really believe in smoking these short pipes more nicotine is taken into the system than in using the longer stems. There were a number of cases in men who indulged freely in cigars and one case brought on by the use of cigarettes (cited above); no case being caused by chewing the weed. Several meetings ago I made mention before the society of a very interesting case met with at the Moorfield Eye Hospital, London; the patient being a female who had every symptom of this disease, but denied the use of tobacco; she, however, spent all her time in the same room with her husband, who was a paralytic and a constant smoker, using more than an ounce of tobacco daily. Whether this was a true case of tobacco amblyopia and caused by the constant inhalation of tobacco fumes while the bodily health was below par, I am unable to say, as I lost sight of the case.

What part alcohol plays in the disease is a question to which various replies are given. Some observers consider its part most important and make the two toxic agents equally responsible. My observations have caused me to hold tobacco alone responsible; of course I recognize that most cases met with in tobacco amblyopia indulge in alcohol. Alcohol undoubtedly predisposes the patient by its action on the stomach, producing indigestion and lowering the health of the individual. Cases are cured without the patient giving up his alcohol altogether; an example cited in the first part of this paper; again I have seen a number of cases in which the patient did not use alcohol at all; others where the amount used could not possibly cause the symptoms.

As to the prognosis, most cases will respond to treatment and a good result promised provided there be no absolute scotoma, no contraction of the peripheral fields and the patient willing to obey directions.

Mr. Morton of London cites an amusing and at the same time interesting case: A man, coachman by occupation, came to him with pronounced symptoms of the disease. Upon diagnosing the case Mr. Morton told the patient he must stop all use of tobacco, warning him if he did not blindness would result. The man returned in a month's time with the symptoms even more marked; he stated he had tried, but found it impossible to give up smoking and that he would sooner go blind than do away with the weed. Mr. Morton did not see the case again till some eighteen months later, when he was surprised to find the man enjoying perfect vision. Upon being questioned he said he had not ceased smoking for a day, but had continued to use his average amount. His sight after Mr. Morton had seen him the second time became worse, but later it improved slowly till complete restoration took place.

No. 816 Fifteenth Street.

REPORTS OF SOCIETIES.

SAN FRANCISCO SOCIETY OF EYE, EAR, NOSE AND THROAT SURGEONS.

MAY MEETING.

Dr. Henry L. Wagner, President, in the chair.

Dr. W. A. Martin presented a man aet. 52, with a very beautiful and perfect halo of *exudation around the left macula*, characteristic of albuminuric retinitis. This patient had consulted Dr. Martin in 1892, eight years ago, complaining of failing vision. At that time he found a neuro-retinitis, but no albuminuria. Potass. Iodid was given in 10, and later in 5 grain doses. The vitreous improved, but the disc was not normal when treatment ceased at the end of a year.

Six weeks ago he again consulted Dr. Martin, stating that his vision was failing. Neuro-retinitis was found in the right eye, but no exudate. Ten days later patches of exudate were seen, and in the course of three weeks developed into a perfect halo. It has now started in the left eye. The patient states that he is perfectly well. At the time he was first seen in 1892 there were no symptoms of syphilis, although it was suspected. The facts do not prove that repeated tests in 1892 would have discovered albumin.

In another case with defective vision, a man who was a sea captain and a moderate drinker, there was optic neuritis, but nothing typical found in the fundus. He was always better at sea, when he did not drink.

Discussion:

Dr. F. B. Eaton had lately a similar case, the patient being a carpenter aged 60, of fine physical appearance. He complained that for four months his sight had been failing, but felt perfectly well otherwise save for some indigestion. There is neuro-retinitis in both eyes with a characteristic pattern of exudate around the left macula. The urine showed a large amount of albumin.

Dr. R. D. Cohn thought that albuminuria as an evidence of chronic nephritis could not be connected with syphilis, the two diseases being entirely unconnected.

The President stated that care should be taken in making the diagnosis. In testing the urine, one thing must be considered, the difference between alkaline and acid albuminate. The latter does not precipitate by heat, and it requires much nitric acid to neutralize it. In all syphilitic cases we should examine the urine.

The President presented a woman from whose nose externally he had removed an epithelioma and which had remained cured for nearly a year after he had operated upon it by galvano-cautery. He urged the advisability of giving treatment for the disease constitutionally. The "nest cells" found microscopically can be evidences of either syphilis or epithelioma, but Potass. Iodid cures the syphilitic cases.

Dr. G. W. Merritt presented a woman aged 44 with a *transparent dislocated lens of the left eye*. This had existed 25 years, being the result of a blow which had caused no inflammation.

Dr. L. C. Deane presented a report of *36 cases of heterophoria* occurring in his practice with a carefully prepared table. He had found greater difficulty in making the report than he had anticipated. Recent cases could prove nothing, so he had reported no case occurring within two years. The cases reported are not picked cases, but were taken in order as they appeared in his records.

About 75 per cent were females, while youth seems to be the favorite period. Vision was determined without glasses, the correction noted and the improvement obtained by glasses. Among the symptoms noted were headache, pain in the eyes, weariness after concentration at the near point, etc. The adduction, abduction and sursumduction were taken before treatment and after. In many these tests were made a year or two after the completion of the treatment. Little or no change in the *muscular balance after the treatment* was found resulting from any method except where graduated tenotomy was performed.

Out of the 36 cases reported, 16 were operated upon, and relief was obtained in all but two cases. In two cases an exact state of orthophoria was obtained. In one case an operation on the left superior rectus for left hyperphoria corrected a coexisting exophoria.

The effect of wearing weak prisms constantly is shown in ten of the cases and the result except in three cases was encouraging, though Dr. Deane was convinced that better results would have been obtained if some had consented to operation. The effect of prism practice when not connected with operation was not permanently beneficial, but only

palliative, though three of the cases are exceptions. In a number of cases an ametropia and heterophoria existed together, and the correction of the ametropia gave entire relief. This was due to one of two things: Either the heterophoria caused none of the reflex symptoms (as is shown in many cases of heterophoria without an ametropia), or disturbed convergence due to the ametropia was the cause of the heterophoria, and the correction of the former corrected the latter as well as the disagreeable reflex symptoms. Relief was obtained by spherical and cylindrical lenses only, without effecting the heterophoria, in two cases; partially correcting the heterophoria in one case; entire correction, one case. Dr. Deane had had many cases that showed a large refractive error combined with a small amount of heterophoria. He had made no exact note of the latter and only prescribed for the refraction, with relief.

Discussion:

Dr. V. H. Hulen thought that the most important questions as regards the report were: What operations were done, and what were the results? How were they done? Were they complete or partial tenotomies, or were they advancements? Good men have reported many excellent results, but he thought some of these good results were moral. What he had done had not cleared up the matter for him. He had done some graduated tenotomies, but could not tell whether the improvement was the result of the general condition or moral. Advancement appears to be the best operation.

Dr. W. A. Martin said he would have to study out the table for some time to give an opinion regarding it. His experience with graduated tenotomies, which he had at one time practiced for a while, had not been favorable. The pendulum has swung one way, and will probably return. Some time ago he had a patient under his care for a year and a half for asthenopia, whose refraction he corrected. He passed into the care of another physician, and six years later came again under the care of Dr. Martin, who made a more complete correction of an astigmatism, this time with a disappearance of the asthenopia.

Dr. Cohn pointed out that among the cases reported by Dr. Deane a majority resulted favorably, and the inference could be that there must be some good in the methods followed. The question was between hygienic treatment and tenotomy.

Dr. Hulen: Of the 16 cases cured, which were partial tenotomies?

Dr. E. J. Overend considered the table full of data, painstaking, and complete. He did not believe in partial tenotomies. Was much impressed by the paper, but inclined with Dr. Hulen to believe in the moral effect of operations. He was also inclined to believe in the good effect of suggestion. The asthenopia is often the result of a general nervous condition rather than a local one. This is, of course, excluding all errors larger than heterophoria. He was impressed by the fact that 16 cases had been cured.

Dr. Eaton desired to express his appreciation of Dr. Deane's report as an evidence of the Doctor's courage and willingness to "show his hand." He had done quite a number of tenotomies for heterophoria in cases where the use of prisms and general treatment had not relieved, but he had always done a complete tenotomy. His results had been generally favorable. He thought oculists were often too lazy to make the tests necessary to arrive at a just opinion as to the treatment needed, and all thorough work is time consuming. He wished to call attention to the very great importance of considering the muscular balance at the near point in relation to the relative ranges of convergence and accommodation. In 1892 Dr. Arch. Percival in an article in the "Ophthalmic Review" had illustrated the value of getting the abduction and adduction for distance and near by rotary prisms as a means of ascertaining the relative ranges at these points, and in a case of persistent asthenopia under Dr. Eaton's care for over a year, a case of divergence insufficiency for distance and near, without convergence excess, in which prisms base out, so lauded by Dr. Noyes, had given only temporary relief, the prescribing of convex dioptric lenses relieved the patient, although he was not presbyopic, and his range of accommodation unimpaired. Tenotomy of the interni might have relieved him. Dr. Eaton showed a chart of the relative ranges of this patient. The monocular field of rotation was normal, and no operation was justifiable save advancement of the externi.

Dr. Deane (closing the discussion) said that in all the cases he had excluded the condition of the general health as a cause by giving tonics, etc., in cases seemingly of neuasthenic origin. Because he favored graduated tenotomy for heterophoria did not mean that he practiced it in all cases. He recognized the fact that where errors exist with heterophoria, a proper correction of the ametropia will often relieve the disagreeable symptoms. Again, a high degree of myopia or hypermetropia is often a predisposing cause of heterophoria, and a correc-

tion of the former will sometimes relieve the latter. He also believed that the use of a weak prism alone or with the ametropic correction is often more advisable than operation; he recognized the value of prism practice, but placed the least reliance upon it as a method of treatment.

AMERICAN MEDICAL ASSOCIATION.

SECTION ON OPHTHALMOLOGY.

Hotel Windsor, Atlantic City, N. J., July 5th, 1900

ABSTRACT REPORT.

The meeting was called to order by the Chairman, Dr. H. V. Würdemann, Milwaukee, who delivered the annual address, which consisted of a review of the section's growth and progress and of the steady improvement of the character of its work.

The Treatment of Conical Cornea; Optical Therapeutics. Dr. Swan M. Burnett, Washington, D. C. Dr. Burnett considered a careful examination with the ophthalmometer necessary in every case because it gives such valuable indications for treatment. There is nearly always some regular astigmatism present, the correction of which adds much to the visual acuteness. The value of Raehlman's hyperbolic lenses and contact lenses, as well as the stenopaic slit and its modifications, were considered.

The Surgical Treatment of Conical Cornea. Dr. Robt. Sattler, Cincinnati. Dr. Sattler considered the purposes of surgical intervention to be: 1. To arrest an inexorable increase of a conical protrusion of the center of the cornea by converting this region into an opaque scar or a series of cicatricial lines, thereby affording an effectual check towards an otherwise hopeless progression. 2. To effect a betterment of vision in confirmed cases which have been rendered helpless in consequence of hopelessly reduced sight after all other methods of treatment, including every kind and combination of lenses, stenopaic appliances, etc., have been discarded as useless.

Surgical treatment justifiable in a limited number of cases only mainly for the reason that spontaneous arrest of progression may take place in any case before the person is rendered helpless. If a fraction

only of useful vision is preserved, this is preferable in most instances to that which surgical treatment can accomplish at the expense of great risk and much time.

If surgery is practiced for the small number of cases in which it is indicated, the time and selection of methods can only be settled for the cases in question and according to the judgment and experience of the surgeon.

The surgical treatment may consist in repeated paracentesis, excision or abscission of the prominent cone or cauterization of the cone—followed in most cases by supplementary measures of tattooage and iridectomy.

Dr. Sattler also considered at some length the variety of surgical measures that have been suggested and the relative merits of the different methods.

In the discussion of this subject Dr. Knapp related his experiences, first with the older methods, which he had found unreliable, and later with cauterization. He reported 12 cases showing excellent visual results. The method of operating he uses now is to singe the cornea in a limited, superficial area, and then a deeper, and finally a third deeper layer, using the galvano-cautery, but always stopping short of perforation. It is in this manner that he has secured his best results.

Dr. Risley stated that his management of this affection had always been very conservative. He believed that it was an infection belonging to the diseases of the anterior segment of the ball and was primarily dependent upon the diseased condition of the uveal tract. He usually in the early stages insisted on a prolonged rest of the eyes and enforced this by the application alternately of mydriatics and myotics and the use of a compress bandage. This was followed by careful measurements of the cornea and correction of refraction errors. He considered conservatism in the treatment of these cases better in the majority of instances than surgical measures. He related some cases under this treatment which had shown such improvement that they were able to take up and continue long years of college work.

Observations on the Etiology of Scrofulous Keratitis and its Treatment, Especially by Salicylate of Soda. Dr. H. Gradle, Chicago. Dr. Gradle considered the various forms of superficial keratitis occurring in childhood under this head and the indefinite nature of the term scrofulous and referred to the work of recent authors to show the

identity of scrofula with tuberculosis of the lymph glands. Since phlyctenular and allied types of corneal disease occur so frequently in distinctly scrofulous individuals and the more severe forms coincide with the most pronounced manifestations of scrofula, he raised the question whether these forms of eye diseases are not by themselves evidence of the existence of a tubercular focus somewhere in the lymphatic system. He did not believe that the lesion was necessarily due to the presence of the tubercle bacillus at that point, but thought that these types of keratitis occur only in individuals under the influence of poisons produced by the tubercle bacillus in the lymphatic system. Dr. Gradle had in four cases used tuberculin for diagnostic purposes and always with positive febrile reaction. Regarding the efficacy of local treatment the author considered the use of atropin as beneficial whenever the ciliary injection is very diffuse and especially in the case of deep lesions. The more superficial the process the less benefit derived from atropin. The influence of atropin upon the disease should also be judged by the reaction of the pupil; prompt dilatation showing that nothing will be gained by its continued use, while resistance to dilatation was stated as a definite indication for its further use. In the very obstinate cases, which resist all other treatment, he recommends sodium salicylate in large doses—15 to 20 gr. every two hours to an adult, and 10 gr. four times a day for a three-year-old child. Small doses were considered useless. It was not considered to have any specific action, but to be most beneficial in cases accompanied by much suffering.

Discussion:

Dr. Thompson of Indianapolis, Ind., said that he had seen these attacks of keratitis very frequently follow an attack of migraine. As a general rule he had found fresh air and good diet the most important features in treating these children.

Dr. Risley of Philadelphia, Pa., reported a case of frequently recurring attacks of what appeared to be phlyctenular keratitis, but which had afterwards given positive indications of an inherited syphilis.

Dr. A. W. Calhoun of Atlanta, Ga., called attention to the value of protargol in the treatment of these cases after ulceration begins.

Dr. Baker of Cleveland, Ohio, and Dr. McConachie of Baltimore, Md., each called attention to the influence of dietetic treatment, and Drs. Kirkendall and Aschman referred to the necessity for correcting

any abnormalities about the nose and throat, the latter adding that he would consider the salicylate of sodium of value in many of these cases because of the undoubted influence on the fifth nerve.

Dr. Leartus Connor of Detroit thought it would be rather illogical to consider that either indigestion or diseases of the naso-pharynx produced phlyctenular keratitis, inasmuch as there are a vast number of children who have indigestion or adenoids and but a relatively few that have phlyctenular keratitis. He suspected the disease was rather due to a local irritation or infection and considered the treatment by outdoor exercise and good diet of value because it converted the child into a healthy animal, able to resist local irritation. He had also found protargol of considerable value as a local measure.

Dr. Frank Allport of Chicago stated that he had found great satisfaction in cauterizing each of the little phlyctenulae with a 95 per cent solution of carbolic acid.

Dr. Higgins had found eye strain a causative factor and always corrected the refraction after the local irritation had subsided.

Dr. Gradle said he might agree with most of the speakers, although their discussion had wandered away from the subject. He considered the deranged digestion, etc., as only an expression of the hidden tuberculous diathesis.

The use of Protargol in Pyogenic Affections of the Eye. Dr. F. C. Hotz, Chicago. Dr. Hotz considered that this new silver salt has the great advantage over silver nitrate of being non-irritating and non-caustic, even in strong solutions, and on this account it may be used in conditions where silver nitrate would be prohibited. He had tested its efficacy in acute dacryo-cystitis, acute gonorrhoeal conjunctivitis and suppurative keratitis, and reported a few cases to illustrate its good effects.

Discussion :

Dr. Webster Fox of Philadelphia related his experience with protargol. In gonorrhoeal ophthalmia and dacryo-cystitis he had obtained good results. In corneal ulcers the response had not been greater than to the use of nitrate of silver. Since protargol does not give pain upon its use he thought it especially valuable for children. Dr. Fox will shortly publish the results of some laboratory experiments made to determine the germicidal effects of protargol and its penetrative power.

Dr. Geo. E. de Schweinitz of Philadelphia said that he could not be as enthusiastic over the use of protargol as the previous speakers, in that he had found its effects to be uncertain. He believed it was far more agreeable, of course, than nitrate of silver, but that it could do nothing that nitrate of silver will not do, and that the latter could frequently accomplish what protargol could not.

Dr. Casey Wood of Chicago agreed with Dr. de Schweinitz and said that he had not been able to get such good results from its use as had been reported by many writers.

Dr. Clark of Columbus, Ohio, also agreed with the two last speakers in their judgment of protargol.

Dr. Edward Jackson of Denver, Colo., said that he had used protargol a good deal and would rank it as about equal to nitrate of silver, because it was less irritant and more generally applicable to a large number of cases, but if compelled to accept either as a final dependence, he would prefer the silver nitrate. He related one case to show an exception to the rule that it was non-irritating. In this case even a weak solution produced marked redness and great irritability.

Drs. Sutphen and Southard both endorsed the use of protargol, the latter stating that he had come to rely upon it to a large extent.

Dr. Frank Allport had also found its effects very variable and had seen cases such as the one related by Dr. Jackson.

Dr. Connor, both from his own experience and from the discussion, thought there was reason to doubt whether different samples of the drug were of equal value. It had proven a valuable aid to him, especially in the treatment of purulent ophthalmia of children.

Dr. McConachie asked if Dr. Hotz had had any experience with the use of protargol in trachoma. He had seen it used once in an acute case, but without any arrest of the discharge. He had used it frequently in the hospital work, but had gone back to the nitrate of silver.

Dr. Bulson of Fort Wayne, Ind., had used it frequently in trachoma and in a large percentage of cases found that it took the place of nitrate of silver very well.

Dr. Hiers added his testimony in favor of protargol and said that he always used it in trachoma.

Dr. Hotz in closing the discussion said that when he first begun to use the drug his results had been poor, but he had concluded later that this was due to using too mild a solution. He now starts out with a 20 per cent solution and applies it thoroughly to the affected parts.

A Simple Operation for Divergent Strabismus. Dr. L. Webster Fox, Philadelphia. The operation was described as having been developed along the lines laid down by DeWecker, Grandclement and Panas. It is performed under cocaine and divided into three stages—1. Tenotomy of both external recti and stretching of the conjunctiva and Tenon's capsule. 2. Making the elliptical opening, and, 3. Suturing this opening. The details of the operation are carried out as follows: After tenotomy of both external recti muscles a large strabismus hook is inserted in the open conjunctiva and Tenon's capsule and with considerable traction all the tissues are stretched inwards until the cornea is buried in the inner canthus. The stretching of the upper tissue has a tendency to rotate the eyeball to a certain degree and leave the conjunctiva and Tenon's capsule intact below and to equalize the condition the point of the hook is reversed and the lower conjunctiva and capsule stretched. With retractor forceps the conjunctiva is now grasped vertically, midway between the cornea and caruncle, directly over the internal muscle and drawn upwards. By this means the conjunctiva and overlying tissue is separated from the muscle. Then with curved scissors the upraised conjunctiva and capsule is cut close to the eyeball, making an elliptical opening which exposes the attenuated muscle, or if no muscle is present, then the clear sclerotic. The conjunctiva is then separated around this elliptical wound from its subconjunctival tissue at all points, even around the cornea if possible. The wound is then closed by means of four sutures. The object should be to produce from 1 to 4 mm. of convergence, which disappears during cicatrization.

Discussion:

Dr. W. L. Pyle of Philadelphia stated that he had seen Dr. Fox perform this operation and had been pleased with the good results.

Dr. Thorington had also seen the operation performed by its author and had confirmed his results by following the same method. He expected to perform this operation in the future in preference to all others.

Dr. G. C. Savage of Nashville, Tenn., said he was willing to grant that good results might be obtained in an external squint by this operation, but did not suppose the author would advise it for internal squint. He believed that the true way to deal with any form of squint, however, was to weaken the too strong muscle and strengthen the too weak one. This was to be accomplished by a double operation—a tenotomy and an advancement.

Dr. Thompson asked if there was not a great deal of thickened tissue for some months after these operations.

Dr. Fox said that there was, but it disappears in due course of time.

Wednesday, June 6th, Morning Session.

A Double Trial Lens to Balance the Eye in Presbyopia. Dr. M. D. Stevenson, Akron, Ohio. Dr. Stevenson referred to the importance of having the anterior focus of each eye at exactly the same distance and stated that we all see cases in which comfort and good vision can be obtained from each eye separately, yet when the patient looks with both eyes he complains of indistinctness and discomfort. Many patients with glasses have the same visual acuity in each eye. After refracting such cases, and while they view distant test types with both eyes, he takes a plus and minus sphere of .25D strength and places one before each eye, waits a few moments and then quickly interchanges them. If the patient has any choice it indicates the necessity of raising the correction for one or lowering that of the other eye or perhaps both. If, however, the acuity of vision of one eye is any better than that of the other, he uses the same lenses, first one and then the other before the same eye to find out which is the better and then repeats the same process for the other eye.

For the sake of convenience he had combined four lenses in a frame on the principle of the Franklin split lenses, so that the lower lenses could be held in front of the eyes for a few moments and then by lowering the frame the upper two came into position.

Dr. J. A. Lippincott of Pittsburg, Pa., thought this apparatus a very convenient one and said that he had used the same method, holding the glasses in his hands with great satisfaction.

The Relative Value of Instruments Used for Keratometry. Dr. A. D. McConachie, Baltimore. Dr. McConachie had arranged an exhibition of ophthalmometers by their several different makers and discussed the relative merits of the portable and non-portable instruments and offered the following conclusions in regard to the value of instruments used in keratometry: 1. That cylindric correction should never be made from the ophthalmometric findings unless carefully proven by other and much more reliable tests, as with the retinoscope or trial lenses. 2. The ophthalmometric findings may be increased, decreased, or even neutralized by intraocular astigmatism. 3. That the total astigmatism as found by trial glasses and the corneal error as registered by ophthalmometers will vary from .75 to 1.5D. 4. That all

keratometers give us approximately the amount and the exact axis of corneal astigmatism. 5. They may be suggestive as to the diagnosis of hyperopia or myopia. 6. They act as a time saver by giving a clue to the amount and angle of corneal astigmatism. 7. In aphakia they are of a special value as the lenticular astigmatism is eliminated. 8. When for any reason a mydriatic cannot be used the ophthalmometer is a more reliable test for astigmatism than other tests. 9. They will give us information regarding corneal astigmatism in corneal opacities, or opacities of the vitreous when retinoscopy cannot be used. 10. All keratometers in the market are valuable, one excelling the other in the manner of mechanical conveniences. 11. That in the near future, owing to the rapid improvement in mechanical convenience and scientific precision, which the ophthalmometer is undergoing, it is quite probable that its findings will become as trustworthy as the retinoscope and the subjective test.

Dr. Davis in opening the discussion considered in detail each of the different ophthalmometers and then took up the discussion of Dr. McConachie's conclusions. He differed with him as regards conclusions number 5 and 8, stating in regard to the former that the ophthalmometer was never intended to diagnose hypermetropia or myopia and that it could give no reliable information in that direction. Concerning conclusion number 8 he thought that it should be amended by adding "that it is seldom necessary to use a mydriatic when correcting errors of refraction."

Discussion:

Dr. Swan Burnett of Washington, D. C., said that the paper conformed in every particular to the opinions that he had expressed as far back as 1887. In regard to the particular instrument he put in a plea for the original model of Javal, saying that he had seen none which gave a clearer definition. Dr. Burnett thought that the instrument is one of the most valuable aids in the diagnosis of corneal astigmatism, that it can usually be relied upon to give approximately the direction of the meridians, but that it could not be depended upon for the amount.

Dr. C. H. Williams of Boston, Mass., considered some of the instruments defective in that the light is not sufficiently close to the mires. He believed that in putting the light on the mires or within two inches of them a better illumination was obtained and that there was less discomfort to the patient.

Dr. Merrill endorsed the statement of Dr. Williams and said that he had had considerable difficulty, however, to induce the instrument maker to attach the lights in this way.

Dr. Edward Jackson said that on the whole he had gotten better illumination by daylight than by artificial lights and believed that much of the trouble others had is due to the fact that in trying to get bright illumination too much light was thrown on the patient's face. He differed with the author of the patient regarding the relative value of the ophthalmometer and the shadow test when no mydriatic was used. He believed the latter a very much more delicate and far more reliable test without the mydriatic than the ophthalmometer could be. He said that it was reduced somewhat to the level of the ophthalmometer in regard to measuring hypermetropia and myopia without the mydriatic, but that it still remained the most delicate test for astigmatism with or without a mydriatic.

Dr. G. C. Savage said that he did not see how any man could do good refraction work without the mydriatic. He had thought that probably by this time the world of ophthalmologists would have been converted to the idea that the mydriatic is indispensable in refraction work, yet a number of men were still rendering aid to the optician by publishing statements that mydriatics are not necessary. He believed the mydriatic indispensable in correct refraction work.

Dr. Southard of San Francisco, Cal., called attention to a transilluminated mire that he had suggested some four or five years ago and which he believed was the first one in use. The material used was porcelain, because it gave a universally clear field that could not be obtained with any other substance.

Dr. H. V. Würdemann of Milwaukee, Wis., spoke in behalf of the transilluminated mire, which he had found better than the reflected light for practical purposes. He also preferred one of the newer forms of mires such as that which makes a cross, because with the old stepped variety the diffusion of light as they approached each other was often so great as to create the illusion that they touched before they actually came together, thus making an error of a half dioptré or more.

Dr. Lautenbach of Philadelphia, Pa., said he endorsed nearly all of Dr. McConachie's conclusions and considered the ophthalmometer the most accurate way to determine the axis of astigmatism, but that it was useless for determining the amount. He believed that better re-

sults would be obtained if the instrument were always used in the dark room.

Dr. McConachie in closing said that he believed it was possible to get better illumination by the reflected lights, but that personally he was able to estimate the amount of error with the transilluminated mire.

Wednesday, June 6th, Afternoon Session.

The Executive Committee, through its Chairman, Dr. Geo. E. de Schweinitz, reported in favor of adopting the same resolutions in force this year concerning the number of papers, their method of selection, time limit, etc., for next year, and nominated Dr. J. A. Lippincott of Pittsburg for Chairman, and Dr. E. C. Ellett of Memphis, Tenn., for Secretary. The report was accepted and the officers elected.

Remarks of the Value of Homatropin as a Cycloplegic. Dr. E. C. Ellett, Memphis, Tenn. The author admitted atropin to be the best cycloplegic we possess, but considered homatropin the most prominent candidate for favor by reason of its quick and evanescent action. He believed that although observers disagreed as to its reliability, the majority considered it effective. In the form of solution he preferred one of the strength of 12 gr. to the ounce, but had found personally that the discs prepared after the formula of Dr. Casey Wood were more effective. In a series of 52 clinical observations there was an average gain for atropin of .54D in 36 cases. The results were identical in 12 cases and an average gain of .44D was noted for homatropin in 4 cases. In the cases showing most gain for atropia, however, the tests were made at an interval of three or four years and there may have been a real change in the refraction.

Discussion:

Dr. Culver of Albany, N. Y., said that he had used both the discs and solutions, but contrary to the experience of Dr. Ellett he had abandoned the discs in favor of the solutions since the discs seemed to cause more destruction of the corneal epithelium and thus detracted from the optical examination.

Dr. Casey Wood said that it was this destruction of the epithelium which allowed of the rapid absorption of the homatropin. He thought at least a month should be allowed to elapse between examinations in comparing cycloplegics, for experience had taught him that if one makes a second examination in a short time, even with the same mydriatic, a greater amount of hypermetropia or a lessened myopia may frequently be found.

Dr. S. D. Risley called attention to the importance of using mydriatics for their therapeutic value as well as for the cycloplegic effect. In a large number of cases coming for refraction examination he finds fluffy choroids, hyperaemia of the optic nerve, etc., and feels that no rapid mydriatic will meet the requirements in such cases, but that whatever mydriatic is used should be continued long enough to secure for the eye the needed rest.

How to Construct Curves Representing Relative Accommodation and Convergence. Dr. Lucien Howe, Buffalo, N. Y. Dr. Howe exhibited a new instrument, which he calls the opto-dynameter, for measuring the relative accommodation and convergence. After showing its scientific importance and practical value, he exhibited a number of formulae prepared for the tabulation of results after making the necessary examination.

Drs. Edward Jackson and S. D. Risley both considered the subject of very practical clinical importance and hoped that such scientific work might soon be adapted to the daily needs of the ophthalmologist.

Estimation of Amount of Injury to the Business Capacity of the Individual from Partial or Complete Loss of Vision. Dr. H. F. Hansel, Philadelphia. Dr. Hansell's paper scarcely admits of condensation. It represents an enormous amount of work and should be read in full. His conclusions were as follows: Blindness is that degree of loss of vision that incapacitates one from earning his living in any occupation requiring the use of the sense of sight, the degree varying according to the demands of the occupation. 2. Vision of less than one-half diminishes the earning power and the less the vision the greater the loss of earning power. 3. Monocular blindness is not incompatible with full earning capacity. 4. Monocular blindness and weak sight in the remaining eye rapidly diminishes the earning capacity. 5. The loss of earning power owing to defective vision may be computed according to a simple system based upon the ratio of the loss of vision to the full earning power, at any age and in most occupations.

Lessons Learned from a First Series of 100 Cataract Extractions. Dr. F. T. Rogers, Providence, R. I. Dr. Rogers related in detail the different operations performed and the method of their performance, the preparation of the patient, after treatment, resulting acuity of vision, etc. He then considered some of the difficulties he had met with and gave his reasons for preferring the combined method. The histories of the cases in which satisfactory results were not obtained were

then related and the following conclusions drawn to guide him in future work: 1. More attention should be paid to the general condition of the patient and the presence of any systemic disturbance should influence the prognosis. 2. All operative procedures on the crystalline body should be done under the best possible illumination. 3. Providing that it is large enough, the exact site of the corneal section does not materially influence the result. 4. The combined operation is the safest and the easiest for the operator of limited experience. 5. The most frequent complications, iritis and irido-cyclitis, should be combatted by the early instillation of atropin and their existence does not necessarily prevent an ultimate good result. 6. Infection of the wound does not in all cases destroy the sight and careful and assiduous treatment may save an apparently doomed eye.

Discussion:

Dr. Holt of Portland, Me., opened the discussion on this paper and laid stress upon the necessity of having patients under observation for some days before the operation in order to learn their peculiarities and to look for any general systemic disturbances. As the result of his experience he had come to prefer the simple extraction. He believed one of the most important things for the young operator was a long practice on pig's eyes, since it gives him confidence in his hand and improves his technique. He had abandoned the use of shields after operation—had tried them fifteen years or more ago and thought they irritated the patient.

Dr. Robert L. Randolph of Baltimore, Md., referred to the wonderful natural powers of resistance to organisms that the eye possesses and said that while he had formerly used bichloride solutions in preparing the eye for operations, he had for a long time abandoned their use and now simply sterilizes his instrument and cocaine. He also expressed surprise at the number of cases where the author had succeeded with operations for maturing cataracts. He had tried in ten cases and only succeeded in one.

Dr. Marple of New York asked if there were any other gentlemen present who did not irrigate the eye before operation. Since the publication of Dr. Randolph's paper he had stopped the use of bichloride and depended on sterile salt solution. Dr. Bulson endorsed the author's opinion that the combined operation is the best for the man who does but few operations a year.

What Amount of Visual Defect Should Disqualify in Railroad Ser-

vice. Dr. Frank Allport, Chicago. Dr. Allport has communicated with nearly all the railroads in the country and presented an elaborate statistical report showing just what roads require examinations of their employes and the nature of those examinations. He advocates an entrance examination of the eyes and ears of all railroad employes concerned with the active operating of trains, and believes that such examinations should be made preferably by regularly appointed eye and ear surgeons. He favors two general standards of visual and aural requirements, one of perfectly healthy eyes and ears for all employes entering the service, and one of a graduated nature according to the class of employment, length of time in the service, etc. Re-examinations should be made of all men every three years, or after any severe illness or accident or any occurrence that might cast doubt upon the visual or aural capacity of the individual. Men known to be excessive users of liquor should not be employed on the road.

This paper, like that of Dr. Hansell, represented a great deal of work, and as both dealt with subjects of great practical importance and were of such great value, the society unanimously passed a vote of thanks to Drs. Hansell and Allport for the manner in which they had presented their subjects.

Discussion:

Dr. C. H. Williams of Boston, Mass., stated that Dr. Allport's list of railroads did not include three of the largest in the country, where he was sure the most careful examinations are now being made of the vision and color sense of their employes. These were the main line of the Pennsylvania system, the Chicago, Burlington & Quincy and the New York, New Haven & Hartford. Dr. Williams described the form of examination in use on the latter road, and stated his belief that non-medical men could make the examinations perfectly well if they were properly coached, provided, of course, that their reports should always be subjected to the expert at the central office. In regard to testing the color sense, he advised the use of the lantern as well as the worsteds.

Dr. Thomson of Philadelphia reviewed briefly the Pennsylvania Railroad's system of examination and the difficulties met with in starting that work in '81. He believed the method had been fairly satisfactory.

Dr. Allport's paper was referred to the special committee, which

is now considering this question and which expects to report at the next annual meeting.

Thursday, June 7th, Morning Session.

An Improved Lantern for Testing Color Perception Dr. C. H. Williams, Boston. This lantern consisted in an improved form of the one shown last year. In the front of the lantern are two openings so that two colors may be shown at one time and in this way a comparison of signal colors can be had, or by moving a diaphragm one color can be cut off and only one light seen at a time. There are a large number of colored glasses in one disc that moves before these openings and variations of intensity of color are arranged by a difference in the shades of the colored glasses and by combining them with smoked or ground glasses placed in another disc, while the size of the color area can be varied by a diaphragm moving between the discs.

Discussion:

Dr. Thomson of Philadelphia, Pa., exhibited a small lantern which he had devised for the same purpose. This consisted of a chimney which can be placed over a small kerosene lamp or a spring candlestick and which carries two discs containing the ground and colored glasses. Only one light was shown at a time.

A Double Hook for Use in Advancement Operations. Dr. C. F. Clark, Columbus, Ohio. This instrument consisted of a hook similar to the ordinary tenotomy hook and upon its shaft a second hook was so adjusted that it could slide down upon the other and catching the muscle tendon between the two, it could be firmly held by a set screw.

Exhibition of Instruments. Dr. Edward Jackson, Denver. Dr. Jackson exhibited a new trial frame for use in retinoscopy. It was marked with alternate black and white stripes with which to compare the direction of the line of light in the pupil and render it easy to judge the direction of the meridians.

He also exhibited two different forms of the crossed cylinders for use in refraction work. Each had a handle placed at an axis of 45 degrees to the cylinders and by holding it in the hands the cylinders could be quickly reversed.

Secondary Operations on Capsular Membranes. Dr. Peter A. Callan, New York. The dangers in this operation were stated to be two-fold—first, the introduction of septic material, and second, the traumatism. The second depends somewhat on the method of operating. If the membrane be thin, the knife needle used according to

Knapp's method was considered to give the best results. In all other cases the author preferred the use of the DeWecker scissors and the performance of an iridotomy. He believed that the scissors produced the minimum of traumatism.

Discussion:

Dr. Bates opened the discussion with the consideration of the formation of secondary cataracts. He did not believe that it was ever due to wrinkling of the posterior capsule, but that it depended upon the formation of fibrous connective tissue. He said that he had been able to prevent the formation of secondary cataract in the rabbit by filling the anterior chamber, immediately after the cataract extraction with salt solution, instead of allowing the anterior chamber to refill with aqueous, as the examination of such aqueous fluid had shown it to contain fibrin forming material. He had applied that principle to human eyes and believed he had invariably succeeded.

Dr. Uribe Troncoso of Mexico said that his experience had been similar to Dr. Callan's, and he also preferred the DeWecker capsule scissors in treating thickened capsules.

Dr. W. E. Weeks of New York said that he had used salt solution to wash out the debris after a cataract extraction for a long time, but while his secondary cataracts were perhaps less dense, they still formed. He found it necessary to operate for capsular cataract in about 99 per cent of his private cases and perhaps 70 per cent of hospital cases.

Dr. Herman Knapp of New York thought that one important feature of cataract operation and which might influence the formation of secondary cataract was the performance of the cystotomy. He advises introducing the cystotome under the iris and turning it gently, rupture the capsule in its length near the periphery. This wound heals by cicatrization and is not so apt to adhere to the iris. In dealing with capsular cataracts the needle knife should be sharp, and he thinks it is just as necessary that the cystotome should be exceedingly fine, delicate and very sharp, so that the capsule should be cut and not torn. If the capsule is tough or the lens dense and a dull instrument be used, the suspensory ligament may be torn and this frequently leads to prolapse of the iris, perhaps not immediately, but within 24 hours. He agreed with the writer of the paper as to the use of the needle knife for thin membranes and the scissors for thick ones.

Dr. C. F. Clark called attention to the Noyes scissors which he thought possessed some advantages over those of DeWecker. Dr.

Clark and Dr. Knapp both expressed a strong preference for the simple extraction and both believed it easier and safer in the majority of cases than the combined extraction.

Dr. Myles Standish of Boston, Mass., endorsed the Noyes scissors as giving greater motility in the anterior chamber.

Systematic Cleansing of the Nasal Cavities Before Operations Which Involve Opening of the Eyeball. Dr. J. A. Lippincott, Pittsburg. Dr. Lippincott stated that inflammation following operations may arise after a mechanically flawless operation and is usually the result of the introduction of germs. The ordinary precautions against sepsis, those relating to the cleansing of the conjunctival sac and of the instruments were not considered sufficient to prevent this. He thought that the nose was the principal source of infection and recommended thorough spraying of the nasal cavities with permanganate of potash before operating. He thought this would tend to prevent inflammation and favor speedy healing and a good result.

Dr. Geo. E. de Schweinitz had used this method since it was suggested to him by Dr. Lippincott six months ago and believed it to be a proper procedure. The spray was not found to be a pleasant one for the patients, however, and in one instance had set up a very disagreeable sneezing.

Dr. Clarence A. Veasey of Philadelphia had experienced the same complication and in one case the spray had caused an intense nausea which was followed by vomiting. He had obtained better results, however, with the permanganate spray than with the ordinary alkaline solutions.

Thursday, June 7th, Afternoon Session.

Case of Coloboma of Each Lens Without Coloboma of the Iris or Chorioid. Dr. J. M. Ball, St. Louis. This paper describes a case of binocular coloboma of the lens in a boy 14 years of age. A colored illustration accompanied the paper, showing the appearance of each lens and a part of the fundus.

Discussion:

Dr. McConachie reported a case of a boy 12 years of age, who came complaining of double vision which could be avoided by contracting the lids. He found the lens dislocated upward and outward and the lower border slightly excavated. There was also a coloboma of the suspensory ligament in this case and the condition was symmetrical in each eye.

Dr. Robert L. Randolph reported a case of a man with microphthalmus with coloboma of the lens, iris, choroid and optic nerve.

A Case of Tubercular Tumor of the Orbit. Dr. H. F. Hansell, Philadelphia. The patient, aged 13, had noticed for six months a small swelling above the upper lid of the right eye that had slowly increased in size. The tumor was rounded on its anterior border, loosely attached to the roof of the orbit, partly movable and painless. Elevation of the upper lid was limited, but the rotation of the ball was normal. The tumor was removed and examined by Dr. Harris, who considered it of undoubted tuberculous origin. The patient gave no evidence of tuberculosis elsewhere in the body and the family history was good.

An Insurance Case in which Ossification of the Choroid Led to Identification of the Body. Dr. R. L. Randolph, Baltimore. The case was that of a man whose body had been at the bottom of the Niagara River for nine months. When discovered it was in such a stage of advanced decomposition that the Insurance Companies claimed that it was impossible to identify it. Among other points, however, the family and friends remembered that he had been blind in one eye since early childhood from an injury. This eye on examination showed ossification of the choroid, which demonstrated that the body was that of a man who had been blind in that eye for many years previous to death.

Local Therapeutics to Promote Absorption of Exudates Within the Eyeball. Dr. Uribe Troncoso, Mexico City. After a consideration of the manner in which exudates are formed in the eye, the author takes up the consideration of direct infection as the most frequent cause, and advocates the immediate and rigorous antiseptic treatment of the site of infection. Solutions of bichloride or cyanide of mercury and mechanical cleansing may be used and iodoform and atropin should be applied and followed by pressure bandage. The subconjunctival injection of cyanide of mercury was recommended in these cases. When the inflammation was severe he applies the leech to the temple. Reference was made to Darrier's recommendation to inject one or two drops of corrosive sublimate in the strength of 1 to 1,000 into the vitreous after panophthalmitis has appeared. In the case of corneal exudates, when the irritative phenomena have disappeared and it is necessary to promote the absorption of exudate, he recommended hot compresses, the vapor of hot water projected on the cornea and

the use of yellow oxide ointment. He had also found the subconjunctival injections of cyanide of mercury very successful in these cases. In plastic iritis the absorption of exudates is promoted by the application of heat and the use of blisters or leeches if the inflammation is intense. Atropin was recommended as of great value, not only to decrease the inflammation, but to promote the absorption of exudates.

The Present Status and Value of Massage of the Eyeball with a Consideration of what Diseases may be Favorably Influenced by this Measure and the Best Means of its Application. Dr. Casey A. Wood, Chicago. Dr. Wood considered indirect massage, with the pulp of the finger placed on the skin of the lids, preferable to instrumental methods. The act of massage should not produce pain, and little is to be gained by the employment of much force. The duration of the seance should rarely exceed three or four minutes, and once a day at most is frequent enough for these applications. He usually instills a drop or two of cod liver oil or castor oil and tells the patient to wink and move the eye, so as to thoroughly distribute the oil in the conjunctival sac before beginning the massage. Remedial agents may be dissolved in the oils if desired. A favorite compound of Dr. Wood is citrine ointment, made with brown cod liver oil, instead of lard oil. Massage was recommended, for chronic diseases of the eye borders and substance, especially chronic conjunctivitis, most forms of ulcer of and deposit in the cornea and for the temporary relief of glaucoma. It was not recommended for acute conjunctivitis or keratitis and diseases of the iris, ciliary body, lens, chorioid, vitreous or optic nerve. The author believed that in young subjects it lessened the opacity following ulcer of the cornea, and in the same way was valuable in the treatment of interstitial keratitis.

The Use and Abuse of Iodide of Potash in Ophthalmic Practice. Dr. A. R. Baker, Cleveland. Dr. Baker believed that the iodide of potash should generally be administered in rapidly increasing doses until from 1 to 500 grs. is given daily. 2. The drug should always be given after eating and well diluted with water. 3. Not infrequently large doses will be tolerated when small ones cannot be well taken. 4. Large doses are indicated in optic neuritis, ocular paralysis, chorioiditis, serous and relapsing iritis, cyclitis and interstitial keratitis. 5. It is contraindicated in gray atrophy of the optic nerve and most cases of post-neuritic atrophy. Large doses are of doubtful utility in the removal of post-operative exudates, but should be tried.

Immature Cataract and its Treatment. Dr. Geo. E. de Schweinitz, Philadelphia. After a very thorough and interesting consideration of the whole subject, Dr. de Schweinitz offers the following conclusions: 1. Certain lenticular opacities, most often situated in the nasoinferior quadrant, occasionally are practically stationary and may be designated nonprogressive. They may be separated from the class to which the name incipient cataract is ordinarily given. 2. Certain lenticular opacities undoubtedly depend upon disturbance of the chorioid as apart from active chorioiditis, and their progress is sometimes apparently checked by measures which restore the choroid to the normal condition. Such measures do not, however, remove from the lens the opacities which have already formed when the patient comes under treatment. 3. Certain lenticular opacities appearing in association with diabetes, nephritis, lithaemia and arterio-sclerosis are sometimes apparently retarded by treatment of the general condition. 4. Certain lens opacities produce high degrees of astigmatism, the correction of which may result temporarily in a surprising improvement in vision. 5. Certain opacities cause an obscuration of vision which may be largely dissipated temporarily by providing the patient with moderately tinted glasses and continuing mild mydriasis. 6. The extraction of unripe cataracts is preferable to any of the ordinary operations for ripening. 7. There is no evidence that electricity has the slightest influence in checking the progress or in dissipating cataracts, and if there is any evidence that massage favorably modifies the rate of development it is still very insufficient. 8. There are no "specific remedies" for the treatment of cataract, and there is no reliable evidence that drugs exist that cause the absorption of partially or fully formed cataracts.

FRIDAY MORNING SESSION.

Exhibition of a Portable Magnet. Dr. W. B. Johnson, Patterson, N. J. Dr. Johnson exhibited the instrument, which has been described in the Archives of Ophthalmology, about 1 year ago. It is much more powerful than the Hirschberg magnet or any other of that class, and seems to be as useful as the Haab, while much less expensive and weighing only about 3 pounds, has a much larger range of usefulness than the Haab.

Dr. J. A. Lippincott described a magnet which he had invented some years ago of about the same strength as Dr. Johnson's, but of

heavier weight. He uses it suspended from the ceiling by a cord and pulley.

Dr. W. F. Southard, of San Francisco, exhibited a new phakoscope, and Dr. Henry Gradle, of Chicago, exhibited a new monocular bandage.

Dr. Bates, of New York, described and exhibited a new lachrymal syringe, which consists of a simple medicine dropper with a curved point and drawn out to a very fine point that can be introduced into the lachrymal punctum.

Dr. W. M. Sweet, of Philadelphia, exhibited a *new recording electric perimeter*.

A Case of Glioma Retinae. Dr. G. A. Sulzer, Portsmouth, Ohio. A girl baby, 14 months old, presenting the usual symptoms of intra-ocular growth, was operated upon after the diagnosis of glioma had been made. Microscopic examination confirmed the diagnosis, but the sections showed spots of fatty degeneration and calcareous infiltration. Fourteen months after the enucleation there is no evidence of further development of glioma.

A Clinical Study of One Hundred and Fifty Cases of Hyperphoria. Dr. Wendell Reber, Philadelphia. As a result of this study Dr. Reber concludes: 1. That hyperphoria occurs in about 1 out of 6 patients who seek the counsel of the ophthalmologist. 2. That it is present to the extent of one-half degree or more in one out of three refraction cases. 3. That it becomes worthy of special attention in about one out of five refraction cases. 4. That it is more likely to be latent before the 30th year and manifest after that time. 5. It occurs most frequently to the extent of about 1 degree. 6. Prism corrections will be of service in about 50 per cent of all cases. 7. When this, and attention to the patients general condition, exercise, etc., have been exhausted, section of one of the verticle muscles may be thought of. Two to three degrees is likely to be the amount permanently obtained by vertical tenotomy.

A Clinical and Pathological Study of a Case of Haemorrhagic Glaucoma. Dr. W. Campbell Posey, Philadelphia. The patient, a man 58 years of age, and the subject of general arterio-sclerosis, had extensive retinal haemorrhages in both eyes, followed by glaucomatous symptoms, and an enucleation was necessitated on the right side. The full pathological report was given and the whole subject of haemorrhagic glaucoma was reviewed in an interesting manner.

Adjournment.

OPHTHALMOLOGICAL SOCIETY OF THE UNITED KINGDOM.

G. Anderson Critchett, M. A., F. R. C. S. E., President in the Chair.

Thursday, June 14, 1900.

OCCLUSION OF BOTH CENTRAL ARTERIES OF THE RETINA.

Mr. W. H. Jessop read this paper:

The patient was a woman, aged 35, married nine years, who had no children living. She had had one miscarriage soon after marrying, and eight months ago she was delivered of a child at the ninth month which only lived a few hours. On October 24th, 1899, on awaking, she found she could not see with the right eye, although she was quite well at the time and had no previous illness, except an attack of influenza nine years ago and epistaxis two years ago which continued for some weeks. On ophthalmoscopic examination the eye presented the symptoms of embolism of the central artery. V = doubtful P. L. The left eye was normal. On December 28th, 1899, she suddenly at 11:20 a. m. lost the sight of the left eye, and on examination all the signs of embolism of the central artery were present and V = no P. L. At the present time both optic discs are atrophied, the retinal vessels are reduced to mere threads and in places there is a white thickened condition of the sheath (periarteritis). The vision of the right eye has improved to , but that of the left is P. L. only. The patient had been treated with mercury by inunction and internally.

The interest of the case was in the arteries of each eye being affected and in the fact that the only symptom and sign pointing to embolus was the suddenness of each attack. No possible source of the emboli could be suggested. This rather pointed to a retinitis being the predisposing cause, and considering the great improvement of the vision under treatment it was probably of syphilitic origin. The changes seen in the vessels pointed to arterial degeneration.

Mr. Collins described the case which he had shown before the Society in 1897. The patient also had epistaxis and amenorrhoea.

Dr. Abercrombie asked if the patient had any uterine disease.

Mr. Doyne thought that after embolism the peripheral parts of

the retinal vessels were usually somewhat larger than the central portion, and this not being the case in Mr. Jessop's case he thought suggestive of arterial disease, being the chief cause of the condition.

Mr. Jessop, in reply, said he agreed with Mr. Doyne, and also stated that there was no uterine disease.

THE ARITHMETICAL TRIANGLE IN OPHTHALMOLOGY.

Mr. C. Wray read a paper entitled the Arithmetical Triangle in Ophthalmology: How to Use It and What It Reveals. This method of investigation was a new one, and the author's plan of using it was as follows: Determine the maximum negative error of refraction, and assume provisionally, in accordance with the general law of error, that the positive errors will be equal in amount and frequency. The paper assumed the negative error $+11$, that is, 1D under E, and this suggested the use of the 23rd line of the triangle, with the result E=15 per cent, M 26 per cent, H 59 per cent, and myopia over $-6D$ 0.66 per 1,000, the minimum number found in any province of France being 1 per 1,000 (French Army Statistics). If the 25th line were used under the assumption the commonest refraction is E, then there would be E 13.2 per cent, M. 43.4 per cent, and H. 43.4 per cent. This would raise the myopes with over $-6D$ far over 14.7, the very highest number that occurred per 1,000, and prove E as the commonest refraction impossible. It would appear as though the highest myopia transmissible was -11 , and that the maximum grades were due to non-hereditary causes acting in addition. Mr. Wray deduced that there was no evidence that the effect of civilization was as serious as it was usually thought, seeing an increase of 1D in the commonest or normal refraction was an impossible and unnecessary hypothesis. Indeed in that case there would be 3 cases per 1,000 with over 6D of myopia from heredity alone, not counting those classed as over 6D from such patients. Generally preferring a -6.5 lens spasm of accommodation, and anyhow seeing the maximum is 14.7, very little room is left for the causes that operate seriously in causing acquired myopia. The details of the paper were of an extremely technical character.

CONGENITAL PAPILLOMA OF THE CONJUNCTIVA.

Mr. Simeon Snell (Sheffield) related this case, which occurred in an infant, aged five months.

The tumour hung from between the eyelids, and fell over the lower lid at about its outer third, the lower part of the growth being

enlarged into a rounded ball about the size of a small pea. It was attached to the conjunctiva about halfway between the corneal margin and the inner canthus, and somewhat broadened out at this attachment. The stalk measured about half an inch, but traction readily lengthened it to an inch. The growth was snipped off with scissors.

Mr. Treacher Collins kindly examined the specimen, and reported that its microscopical appearances were similar to those of a dermoid of the eye.

Mr. Griffith thought that the case should really be called a dermoid tumour, and with this opinion both Mr. Collins and Mr. Snell agreed.

PERIARTERITIS OF THE RETINAL ARTERIES.

Mr. Simeon Snell related a case, and exhibited an ophthalmoscopic drawing.

The patient was a woman, aged 43, and when first seen the sight in the right eye had been falling for about four months. On ophthalmoscopic examination one was at once struck with the peculiar appearance of the arteries on the optic disc, which were encased in a snowy white and somewhat glistening sheath. This appearance extended only a short distance beyond the optic papilla, and was confined chiefly to the arteries on the expanse of the disc. $V = \frac{1}{10}$. There was only one small hemorrhage in the retina, but now there are two others on the disc. In the left eye the appearances were very much less marked, but the disease was evidently commencing. $V = \frac{1}{9}$. The urine contained a trace of albumen, and there were granular casts. The arteries were rigid and tortuous, and there was hypertrophy of the left ventricle.

Reference was made to Mules's case recorded in the Transactions of the Society, vol. ii; but in the present instance, whilst the changes were confined to the optic disc and its immediate neighborhood, they appeared to be much more pronounced.

Mr. Jessop asked if the fields of vision were contracted, and, in reply, Mr. Snell stated that such was the case.

AN ILLUSTRATED WORK ON FOREIGN SCENERY.

Mr. Snell also exhibited an illustrated book on foreign scenery. The interest attaching to the work was that the illustrations, which were very numerous and of a high-class character, had all been executed by a gentleman, a patient of his, who had several years before undergone extraction of cataract in one eye. The other eye was use-

less for visual purposes, owing to complete cataract. The same gentleman, an amateur artist, had been a successful exhibitor at the Royal Academy, but before the operation his paintings had not been accepted.

OPHTHALMITIS ASSOCIATED WITH MENINGITIS.

Mr. Sydney Stephenson read notes of a case of ophthalmitis in a child 7 months, associated with simple posterior basic meningitis.

An effusion of lymph into the anterior chamber of one eye was soon followed by closure of the pupil, diminution of tension, and shrinking of the globe. Death took place on the thirty-third day of the disease, which was characterized by retraction of the head, convulsions, progressive wasting, and fluctuating temperature. At the necropsy lymphopos was found on the medulla and surrounding parts, and could be traced along the crura, optic tracts, and commissure to the left optic nerve. The meningeal exudation was found to contain several microorganisms, including the *diplococcus intracellularis meningitidis* of Weichselbaum. Microscopically, evidences of inflammation were traced from the chiasma and along the optic nerve to the papilla of the inflamed eye. The essential pathological changes in the eyeball itself were neuro-retinitis along with diffuse inflammation of the uveal tract.

Mr. Stephenson concluded that inflammation passed from the cerebral meninges, along the optic nerve to the eyeball, probably by means of the perivascular lymph sheaths.

CARD SPECIMENS.

The following specimens were shown:— Mr. J. Rowan: Section of the healing stump of an optic nerve four days after enucleation. Mr. J. Hern: (a) A case of essential shrinking of the conjunctiva; (b) persistent pupillary membrane; (c) case of abnormally large cornea and deep anterior chamber. Mr. H. E. Juler: Retinal detachment (?) intraocular growth.

NOTES OF A. M. A. MEETING.

The Ophthalmological Section of the American Medical Association was well attended, about one hundred and thirty members registering. Many interesting papers were read, and the meeting reflects great credit upon Dr. H. V. Würdemann, the chairman, and Dr. C. F. Clark, the secretary. Dr. Würdemann presided with dignity and grace and was thoroughly fair and impartial in all his rulings.

It was decided that the next meeting of the Section, those gentlemen appointed to open discussions shall be allowed ten minutes in which to do it.

The new officers of the Section are: Dr. J. A. Lippincott, of Pittsburg, president; and Dr. E. C. Ellett, of Memphis, secretary. These were excellent selections. Dr. Lippincott is one of the old and faithful workers in the Section, and one who stands high in ophthalmological circles. Dr. Ellett is one of the young men who has shown distinct ability, and he is rapidly gaining friends and admirers at the meetings.

While at Atlantic City we met Dr. Lucien Howe, of Buffalo, who has been recently appointed one of the staff of the *Klinische Monatsblätter*.

Among the wives of ophthalmologists who accompanied their husbands to the meeting were noticed Madams Randolph, Oliver, Ellett, Bulson, Standish, Ball, Weeks, Bates, Wood, Würdemann, Holmes and Allport.

While at the meeting we learned that Dr. Savage, of Nashville, will soon issue a new book on "Ocular Myology," a sequel to *New Truths in Ophthalmology*.

The Section of Diseases of Children had an interesting symposium on School Hygiene, and adopted resolutions requesting all Boards of Education to see to it that proper eye and ear examinations were made of all pupils.

Dr. C. H. Williams, of Boston, Mass., resigned as member of the Committee of Railroads. His place was filled by Dr. Calhoun, of Atlanta.

The banquet of the Section was held at the Grand Atlantic Hotel and was well attended. An effort was made to include the wives of ophthalmologists at the banquet, but the effort signally failed. Three or four ladies put in an appearance, but as the outlook was so discouraging they went away. This effort might as well be given up. Everybody seemed to enjoy themselves, although the banquet was delayed to an unfortunately late hour. We recommend that these banquets hereafter be held at half past six o'clock, as they will then take the place of a regular dinner. If the hour is set for seven or eight o'clock, many gentlemen get a lunch or even a dinner before going, and this of course destroys the enjoyment of the occasion. We hope that at the next meeting the banquet will be held at half past six, or certainly not later than seven o'clock, and we believe we voice the sentiment of a large majority of the gentlemen in the expression of this opinion. Dr. Würdemann officiated as toastmaster at the banquet and kept the members and speakers in a good humor. The afterdinner speeches were pleasantly interspersed with a very excellent chorus of male voices. Those who responded to the toasts were as follows:

Dr. Pollard, of Atlantic City, who did so much to make the meeting a pleasant success, was the first speaker, and welcomed the gentlemen to Atlantic City. He was followed by Dr. Casey Wood, whose subject was, Ophthalmology of the Ancients. Dr. J. A. Lippincott on Present Ophthalmology, Dr. Swan Burnett on American Ophthalmology, Dr. Manuel Uribe Troncosco, of the City of Mexico, on Mexican Ophthalmology, and Drs. F. Clark and Dr. Walter L. Pyle. Dr. de Schweinitz, as Chairman of the Executive Committee, in his usual graceful manner, moved a vote of thanks to the Profession of Atlantic City for their hospitality. The motion was adopted with enthusiasm.

Dr. Southard, of San Francisco, wore a marvelous medal and a ribbon around his neck. What the doctor has done to deserve these we do not know, but presume he has rendered some conspicuous services on the Pacific Coast, rendering him eligible to decorations of this variety.

Dr. S. D. Risley, of Philadelphia, was elected President of the

American Academy of Medicine. We congratulate the Doctor, but we also congratulate the Academy.

Dr. Percy Friedenborg, Assistant Surgeon to the New York Eye and Ear Infirmary, showed a very ingenious mirror test instrument for the detection of simulated blindness.

Dr. Uribe Troncosco, of Mexico, was much interested in the discussion of the examination of the eyes and ears of railway employes. He is making a strong effort to have something of this kind done in the Mexican Republic, and we hope he may be successful.

The Ophthalmic Record held its annual lunch at the Blue Grotto on the board walk at Atlantic City. There were present Drs. Wood, Weeks, Randolph, Savage, de Schweinitz, Calhoun, Jackson, Würdemann, Hubbel, Woodruff and Allport.

The Record was found to be in a satisfactory condition financially, and the present management was heartily endorsed, and a continuance of the same liberal policy recommended. A new and attractive feature of the Record will be an abstract department, which will be under the personal supervision of Dr. de Schweinitz, of Philadelphia.

It is hoped whoever has charge of the arrangements for the next meeting in St. Paul, will see that comfortable and convenient quarters are selected for the eye and ear sections. Most doctors of these sections desire to divide their time between the two places of meeting, and the two places for holding these meetings should be in the same building and distinctively convenient to one another. They should also not be far from the hotel where the ophthalmologists intend to stop. Speaking from personal knowledge, we urgently advise all ophthalmologists to engage quarters at the Ryan Hotel. We do not desire to say anything against other hotels in St. Paul, but feel satisfied, nevertheless, that this advice should be heeded. As the hotel accommodations in St. Paul are limited, we advise ophthalmologists to at once write a letter to the Ryan Hotel, St. Paul, Minn., and engage accommodations for the next meeting.

NEWS ITEMS

*Personals and items of interest should be sent to
Dr. Frank Allport, 92 State St., Chicago.*

Dr. W. T. Montgomery, of Chicago, is in Brussels.

Privat-docent Dr. Groenouw has received promotion at Breslau.

P. Sgrosso, Privat-docent of Ophthalmology at Naples, is dead.

A distinguished oculist, Dr. Poncet, of Paris, recently died at Vichy.

Dr. Van Duyse has been made Professor of Ophthalmology in Ghent.

Privy Counsellor v. Hippel has begun his twenty-fifth year as Professor at Halle.

Professor von Michel, of Wurzburg, has received a call to the University of Berlin.

Dr. Frank Allport has been made English Colonial Editor of the Annals of Ophthalmology.

The Ulster (Benn) Eye, Ear and Throat Hospital, of Ireland, submits its 29th annual report.

Dr. Frank Allport, of Chicago, has been made one of the principal editors of the Ophthalmic Record.

Dr. Frank C. Todd, of Minneapolis, has had an addition made to his family in the shape of a daughter.

G. Constable, F. R. C. S. Eng., has been appointed Assistant Ophthalmic Surgeon to the Leeds Infirmary.

Professor Mellinger has received the appointment of Professor in ordinary of the diseases of the eye at Munich.

Philadelphia Polyclinic.—Dr. James Thorington has been elected to a new chair of diseases of the eye, created by the trustees.

Dr. David DeBeck has recently been appointed Professor of Ophthalmology in the Cincinnati College of Medicine and Surgery.

Dr. Hugh E. Jones, M. R. C. S. L. C. P. P, has been appointed Honorary Surgeon to the Eye and Ear Infirmary at Liverpool.

Dr. Robt. F. Le Mond has been made an Emeritus Professor and will no longer participate in active work in the chair of ophthalmology.

Dr. A. Friedmann, who was connected with the Ophthalmological and Aural Institute of New York, has moved to Colorado Springs, Col.

The well known ophthalmic surgeon Dr. Stavros Metaxas, died quite suddenly at Marseilles, in his 75th year. He was born in Cephalonia.

Dr. A. R. Baker, of Cleveland, Ohio, was elected President of the Association of American Medical Colleges at its recent meeting in Atlantic City.

At the annual meeting of the Chicago Medical Society, held June 20th, Dr. Wm. H. Wilder was appointed Trustee for the Ophthalmological Society.

The death, at an early age, of Dr. G. E. Williamson, F. R. C. S. Eng. Surgeon to the Eye Department, Royal Infirmary, Newcastle-on-Tyne, is announced.

Dr. John F. Fulton, of St. Paul, Minn., is Chairman of the Committee of Arrangements for the next meeting of the American Medical Association, in that city.

At a meeting of the graduates of the Northwestern University Woman's Medical School, held June 15th, in Chicago, Dr. Mary C. Hollister was elected Secretary.

Dr. B. E. Fryer has been re-elected Oculist to the German Hospital, Kansas City, Missouri, and also Consulting Oculist to the St. Margaret's Hospital, Kansas City, Kansas.

Under the will of the late T. B. Blackstone, of Chicago, Ill., twenty-five thousand dollars was left to St. Luke's Hospital, and twenty-five thousand to the Passavant Memorial Hospital.

At the last meeting of the Wisconsin State Medical Society, Dr. Wurdemann read a paper on suppurative otitis media, and Dr. Zimmermann read a paper on cholesteatoma of the middle ear.

Mr. H. S. Walker, F. R. C. S., has been appointed Surgeon to the Department of the Eye and Ear at the Leslie Infirmary, in place of H. B. Hewetson, M. R. C. S., deceased.

Dr. Chas. A. Oliver, of Philadelphia, has just received the honor of being made a corresponding member in the "Société Centrale de Médecine du Department du Nord," in France.

At a meeting of the American Medical Editors' Association, held at the Hotel Dennis, Atlantic City, N. J., Monday, June 4th, Dr. Leartus Connor, of Detroit, Mich., read an interesting paper.

We regretted to see that Dr. T. L. Thompson, of Indianapolis, was suffering from an ulcerated cornea. He was still able, however, to keep the Section in good humor whenever he spoke.

Dr. A. W. Calhoun, of Atlanta, Ga., was elected first vice-president of the American Medical Association. This was an admirable selection and we hope some day to see an ophthalmologist president.

A very good plan was inaugurated at the American Medical Association meeting by having the titles of papers and the names of the various speakers written upon a blackboard facing the audience.

Dr. Alfred P. Kean, of St. Paul, while performing a surgical operation at St. Joseph's Hospital recently, accidentally infected one of his eyes. We have not learned, however, whether the eye was lost or not.

The graduates of the University of Pennsylvania held their 30th annual banquet in Philadelphia, June 12th. Dr. Samuel D. Risley was elected Vice-President. Dr. Risley was also toastmaster for the evening.

Dr. Amy S. Barton died March 19th last, at the age of 59. She was graduated from the Woman's Medical College of Philadelphia in 1874; she was professor of ophthalmology at that institution several years.

A draft of a law has been introduced into the New York legislature, which provides for the erection of a hospital for the reception and treatment of contagious eye diseases. It will be located on Manhattan Island.

Dr. Charles Zimmermann, of Milwaukee, has been appointed on the staff of the Annals of Ophthalmology. He will be connected with Dr. R. L. Randolph in the department of German ophthalmological literature.

Doctor Mitvalsky, of Prague, is dead. He was well known mainly through his studies upon Intraocular tumors, (Cysts of the orbit, Choroidal Sarcoma, Sinus Osteoma, Metastatic Ophthalmitis, and Thrombophlebitis).

Everybody was sorry not to see Dr. Harold Gifford, of Omaha, at the A. M. A. convention. Dr. Gifford, however, has lately purchased a farm near Omaha, and it is feared has transferred his interest from bacteria to potato bug.

Edwin Arden, the distinguished actor now playing at McVicker's Theater, Chicago, has been compelled to withdraw from his company on account of impaired eyesight. He sails for Europe this month to consult some specialist abroad.

We are glad to notice that Dr. H. O. Reik, of Philadelphia, is still willing to act as official stenographer of the Ophthalmic Section of the A. M. A. We hope he will always find time to officiate in this capacity as it would be almost impossible to supply his place.

The New York Eye and Ear Hospital. A two story addition to the New York Eye and Ear Hospital will soon be erected on the lot, 311

East Thirteenth Street, in the rear of the present buildings of that institution at the northeast corner of Second Avenue and Thirteenth Street.

The Gross Medical College of Denver has recently made the following appointments in Ophthalmology: Dr. Melville Black, professor of ophthalmology who will conduct the didactic work, and Dr. David H. Coover, professor ophthalmology, will conduct all of the clinical work.

The ophthalmological meetings of the A. M. A. were held in a very pleasant room in the Windsor Hotel. The room was large, well lighted, reasonably quiet and well ventilated. The otological meetings were held across the street in another hotel and so the Sections were quite convenient to one another.

In 1899 1,704 patients were treated in the hospital. Of these 286 were interne cases. The total receipts from all sources were £729 15s. 2d. and the expenditures £791 17s. 1d. Great financial caution is necessary to keep the hospital from shutting its doors. It is only maintained by subscription.

At a meeting of the 4th District Branch of the New York State Medical Association, held in Buffalo May 8th, Dr. Almer G. Starr, of Buffalo, read an interesting paper on "Common, but Generally Unrecognized Symptoms of Eye Strain." The paper was discussed by Dr. Hubbel and Abbott, of Buffalo.

Dr. Risley, of Philadelphia, found a beautiful jeweled watch and charm upon the board walk at Atlantic City, N. J. The next morning he noticed an advertisement in the Atlantic City paper offering fifty dollars reward for the return of the watch to the Hotel Brighton. The doctor returned the watch and received the reward.

Dr. Robert L. Randolph, of Baltimore, was awarded the Alvarenga Prize of the College of Physicians in Philadelphia, July 14th, 1899. The title of his thesis was the "Regeneration of the Crystalline Lens, an Experimental Study." The article is written in Dr. Randolph's usual comprehensive manner and is beautifully illustrated.

Gustavus Hartridge has written a little book that will prove useful

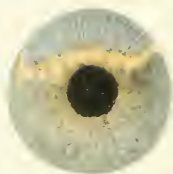
to the general practitioner, entitled "Golden Rules of Ophthalmic Practice." It is published in London by Simpkin, Marshall & Co., has 69 pages and sells for 1 shilling. It can be carried in the pocket or carriage of the busy practitioner, and will quickly tell him how to make a diagnosis, and what to do, and what not to do.

Minnesota opticians met in Minneapolis recently and formed a State Association with Geo. R. Clark, of St. Cloud, as President. They state the object of the Association will be to protect the regular practitioner and the public from so-called quacks, who are said to be coming into the smaller towns in large numbers. We trust they will honestly endeavor to carry out this laudible purpose.

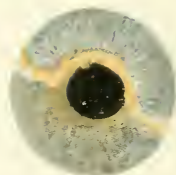
Dr. S. D. Risley, of Philadelphia, at the last meeting of the American Academy of Medicine, read a paper on "Hygiene of Vision in the Home." He described the family living-room, its origin, pleasures, and evils. The natural and artificial lighting of the home were spoken of, and the importance of sufficient and suitable illumination of the home in conserving the general health and vision of the family was emphasized.

Dr. Edna Terry, American missionary in China, recently murdered in that unhappy country, was not only a great missionary, but also a distinguished physician. She graduated from the Boston University School of Medicine in 1886. She performed in 1891 the first medical work ever undertaken by a woman in Tsung-Hua. She came home to America and took a special course in ophthalmology in New York, along which lines she has done conspicuous service in China.

We are glad to announce the issuance of an important monograph, "Injuries to the Eye in Their Medico-Legal Aspect, by S. Baudry, Professor in the Faculty of Medicine, University of Lille, France, etc., translated from the original by Alfred James Ostheimer, Jr., M. D., of Philadelphia, Pa. Revised and edited by Dr. Charles A. Oliver, A. M., M. D., with an Adaption of the Medico-legal Chapter to the Courts of the United States of America, by Charles Sinkler, Esq., Member of the Philadelphia Bar.—Annals of Ophthalmology.



RIGHT



LEFT

EXFOLIATION OF THE IRIS.

THE
OPHTHALMIC RECORD

*A MONTHLY REVIEW OF THE PROGRESS OF
OPHTHALMOLOGY.*

VOLUME IX.

CHICAGO, AUGUST 1900.

No. 8. NEW SERIES

ORIGINAL ARTICLES.

EXFOLIATION OF THE ANTERIOR LAYER OF THE IRIS
WITH PARTIAL OPACITY OF THE LENS.*

Edward Jackson, M. D.,
DENVER, COLO.

(WITH COLORED FRONTISPIECE.)

The following case presents such striking changes of the iris, and seems so suggestive of the significance of changes of color in that membrane, that I deem it worthy of record:

J. M., male, aged 44, a cook, is an inmate of the wards for the insane of the Arapahoe County Hospital, on account of chronic dementia. He gives a history of typhoid fever, acute articular rheumatism, malaria, gonorrhoea and chancroids. He denies syphilis, but has suffered from what were probably the secondary and tertiary man-

* Read before the Ophthalmological Society, May 3rd. 1900.

ifestations of that disease. He has been a moderate drinker, and is now well nourished. Since his admission he has complained of headache and poor sight, and has pounded his head against the wall, until it was severely bruised, "to drive out the spirits" that are troubling him.

His vision is reduced to R. E. $\frac{20}{200}$, L. E. counting fingers at two feet. The corneas are clear, the irides show the appearances to be presently described, and the crystalline lenses present diffuse haziness and clouds of opacity sufficient to account for the impairment of vision. The fundus reflex seems good in all directions. The ocular tension and movements are normal.

The general appearances of the irides and pupils are shown in the accompanying colored plate. The pupils are free, and their reactions normal or but slightly sluggish. The left pupil is somewhat larger than the right. The upper part of each iris presents an area having the blue-gray color of the iris seen in early infancy. In this area the structure of the iris stroma is especially distinct. This part of the iris has lost its anterior layer of epithelium and condensed pigmented tissue. Below the above area is an irregular strip, in which the anterior layer is hanging in shreds and flakes; which while still attached to the iris, swing about in the anterior chamber with the different movements of the eye. At some points this swinging of the loose shreds so influences the iris as to cause a tremulousness of the iris that closely resembles that seen when the iris has lost the support of the crystalline lens. This strip of shreds is distinctly yellowish brown in color. Below this strip the iris presents what was probably its original appearance, a gray-brown color; and the stroma is indistinctly seen through the anterior layer which remains in normal position throughout this portion. During the four weeks that this case has remained under observation there has been a distinct progress in the exfoliation.

In 1869 Jonathan Hutchinson reported the case of a man aged 36 who had recently discovered that he could not see well with his left eye. "The whole lens was slightly opaque and had probably been so for some months. The iris acted well. To myself," says Hutchinson, "the chief point of interest was in the very dissimilar color of the two irides. That of his right eye was gray with much yellow and brown pigment; and that of the left blue gray, without a trace of

brown. He told me that his sisters had often mentioned that his eyes were odd ones. He had not observed any difference in their sight. He was quite aware that they differed in color. Thus the case confirms an opinion which I formerly expressed, that when the colors of the two irides are markedly different, not unusually ulterior changes follow, or marked differences in accommodation are present." (Royal London Ophthalmic Hospital Reports, Vol. VI. p. 277.)

In the next succeeding volume of the same reports, in some "Suggestions for Future Clinical Work in Ophthalmology," Hutchinson says, that it "would be of much interest to observe whether the irides usually differ in tint in cases where only one eye becomes the seat of cataract."

Dr. Malgat, of Nice, reported (*Recueil d'Ophthalmologie*, August 1895,) three similar cases of difference in the colors of the two irides. A woman, aged 50, whose right eye showed a brown iris and normal vision; had a left eye the iris of which was gray-blue, and which presented opacity of the lens of six months' standing.

A man, aged 45, presented a right eye with a brown iris and normal vision; and a left eye with a light blue iris in which cataract had been noticed for about six months.

In the third case, of a man aged 24, the right iris was yellowish brown, and the left was pale blue; but vision was good in both. In a previous paper in the same journal (June, 1889) Dr. Malgat had reported six other cases of heterochromia in comparatively young patients who nevertheless had good vision in both eyes.

In the above cases the differences of color were supposed to date from early childhood, although the evidence upon this point was not always conclusive. Last year Dr. A. Schapringher reported a case (*New Yorker medicinische Monatsschrift*, April, 1899) in which the history clearly indicated that the difference of color was of later date.

A woman, aged about 55, had the right iris brown, and the left iris gray-blue; and in the latter eye there was a complete gray cataract, while in the former the crystalline was quite normal. According to the history of the case, both eyes had been of the same color, brown, until nine years before. Then, without any evidence of inflammation or other disease, the color of the left eye had changed.

Two cases in which the irides were said to have changed color

are reported by Nettleship. (Royal London Ophthalmic Hospital Reports, Vol. XI p. 272). A mother brought her son, aged 14, who had myopia of 10D. His "eyes (irides) had changed color; they were now of a uniform greenish-gray without spots; she said 'they used to be dark brown.'" In the other case in a woman aged 23, one eye was said to have changed from brown to a uniform gray after a chronic irido-cyclitis.

It will be noticed that in all these cases the change of color which occurred was from brown to blue or gray, the change that would be produced by loss of pigment; and that in each of these cases in which one eye became affected with cataract, it was the eye having this same blue or gray color. In my case the change of the iris is going on in both eyes, and both lenses are becoming opaque, and the more advanced cataract is in the eye presenting the greater iris changes.

The pigment that gives color to the iris is in its anterior layer, and the removal of this layer, as my case beautifully illustrates, produces just the color noted in these cases. The deficiency of this layer might be either congenital or acquired. This layer consists of an imperfect stratum of epithelium and condensed stroma, while the lens is an epithelial structure closely allied in origin to the iris epithelium, and its nutrition closely dependent on the state of the uveal tract of which the iris is a part. The association of the lens changes with the gray iris is probably not accidental.

OPHTHALMIC MEMORANDA.

By G. E. de Schweinitz, A. M., M. D.

PHILADELPHIA, PA.

ILLUSTRATED.

Certain interesting features are connected with the records of the following cases, which would seem to make them worthy of publication:

1. *A Cured Retinal Detachment with Remarks on Retinitis Striata.**Last year I related to the Section the history of a case of retinal detachment which occurred in a man aged 52, and in which under the influence of rest and the administration of iodide of sodium there was rapid reattachment of this membrane and a restoration of vision. Prior to this treatment the vision was seeing the movements of the hand downward and outward. The retina was extensively detached and floated as a gray or bluish-gray membrane into the vitreous and contained the characteristic folds, with a greenish-gray reflex from the intervening furrows. The highest point of the detachment was downward and outward and could readily be seen at its apex with +16 D. Where the retina was not actually separated, it was thrown into a series of furrows, with the single exception of a small portion upward and inward which still functionated, permitting a small visual field downward and outward. At the end of forty-eight hours, under the treatment mentioned in the opening paragraph, the retina had reattached itself, and two weeks later the vision was 20_{70} . So far as I know at the present time, more than a year later, there has been no recurrence of the trouble.

* Paper presented to the Ophthalmic Section of the College of Physicians, Philadelphia. Abstracted in the *Ophthalmic Record*, June, 1900.

In reporting a second case of this character I do so, first, because a certain amount of interest always surrounds the treatment of retinal detachment, and second, because the case from the ophthalmic standpoint presents something confirmatory of some of the observations which have been made upon the probable origin of the so-called retinitis striata.

A woman, aged about 30, consulted me on the 8th of March with the hope of obtaining relief from blurred vision of the right eye which had existed for some weeks. The patient had been myopic from childhood and had worn glasses for sixteen years, changing them from time to time, although not with undue frequency, the last change having been made in 1894. There is no history of traumatism directly to the eye, although there is an account of a fall some time before Christmas, by which, however, it is expressly stated that the eye was not injured.

The patient was wearing the following correction: In the right eye $-4.50 - .75c$ axis 90° , with which the vision was 645 . The cornea and lens were clear; there were a few fine floating vitreous opacities; the disc was a horizontal oval with a broad underlying conus. Beginning somewhat to the outer side of the macula and below and extending downward and into the lower half of the fundus beneath the disc, but not reaching up to it, was a large area in which the retina was partly detached, the membrane being thrown into folds like a succession of waves. The general eye-ground was -5 D. The detachment was readily seen without any glass and the summit of some of the waves could be studied with $+1$. Therefore there was an elevation of between 5 and 6 D.

The field of vision was interesting: The periphery of the white field was normal, the red field was cut off above and slightly to the nasal side, corresponding to the position of the detachment, and over this area of lost color-sense white could still be seen but indistinctly. In other words, the retinal detachment was represented in the field of vision by a scotoma which did not quite reach to the periphery above or to the periphery on the nasal side. This scotoma was complete for red (other colors were not tried) but not complete for white, white being preserved over the area as a gray or gray-white.

In the left eye the correction was a $-3.25 - .75c$ axis 90° , with which the vision was 69 . The disc was round, the scleral ring broad-

ened out into an atrophic crescent downward and outward. The general fundus, with the exception of one small spot of choroiditis beyond the macula, was in good condition. There were no opacities in the media.

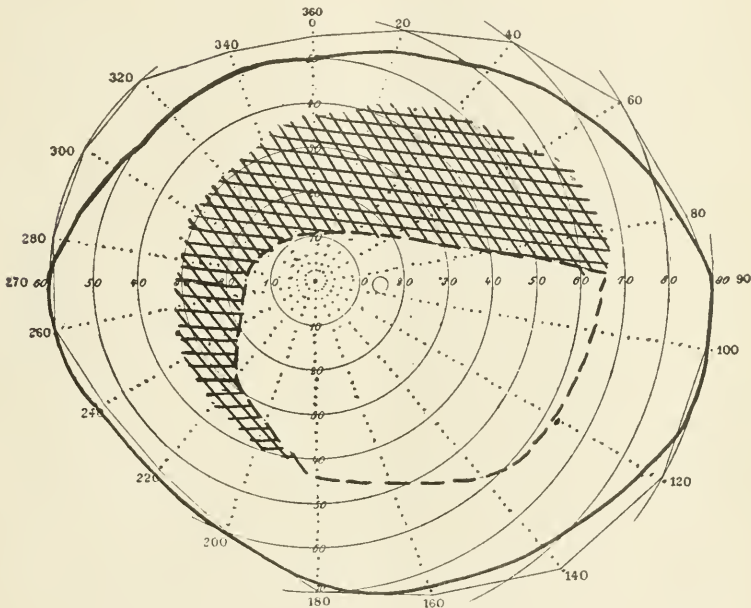


Fig. 1.—Field of vision showing scotomatous area indicating detachment in the lower portion of the retina.

The patient was immediately put to bed, the pupil of the affected eye dilated with atropine and the eye itself covered with a light pressure bandage. For three nights in succession hydrochlorate of pilocarpine was administered hypodermically, while during the day the patient took every three hours 10 grains of salicylate of sodium. Examination on the morning of the third day revealed the retina absolutely in place. The rest treatment was continued to the end of the week, but the pilocarpine was discontinued, and for the salicylate of sodium was substituted the iodide of sodium. At the end of the week the patient was allowed to be up and about the room, but did not leave her house until the 21st of the month; that is to say, thirteen days after the detachment had been discovered.

She was kept under observation for five weeks, at the end of which time the vision of the right eye with $-5s\ominus-.75c$ axis 90 was $\frac{6}{9}$, and the vision of the left eye with $-4s\ominus-.75c$ axis 80 was $\frac{6}{5}$. The following interesting ophthalmoscopic appearances were then visible in the right eye, which are illustrated in the accompanying sketch by Miss Washington.

Just beyond the macular region there was a small patch of retino-choroiditis with a few dots of atrophy, and extending downward and inward from this area was a dark line bifurcated at its commencement near the macula and slightly frayed out towards its termination in the far lower nasal fundus. In the centre of this line was an imperfectly developed white channel, so that, to speak more accurately, there was a whitish line bordered by dark stripes. Each side of this line there was some beginning atrophy of the choroid, or, rather, disappearance of the pigment, permitting a view of the choroidal circulation beneath it. The other particulars of the fundus have already been described.

It will be remembered that Ward Holden when writing upon the **etiology** of striated affections of the retina, said: "It would seem unwarrantable to assume as a hypothesis to be verified by future observation that the affection called retinitis striata, like that called angiod streaks, arises through the elements of peripheric hemorrhage, being diffused in a linear manner in the deep layers of the retina and undergoing various sorts of metamorphosis."

Dr. I. Caspar,* however, after referring to the case which he reported in Helmholtz's *Festschrift* and to Jaeger's plate, relates that Leber a long time ago expressed the opinion that the yellowish and bluish-white figures sometimes found between the retina and choroid in cases in which the detached retina is becoming reapplied may be identical with Jaeger's retinal striations. This explanation Caspar thinks has not received the prominence which is due to it. He then proceeds to detail four cases, in one of which the transformation of coagula of fibrin after detachment of the retina into typical retinal striations took place under his eyes. He does not hesitate to contend that all retinal striations, or chorio-retinitis striata, represent the remains of cured detachments of the retina.

In the case which I have presented this evening there is little doubt that the dark line extending from the patch of retino-choroiditis near

* Archives of Ophthalmology, 1897. P. 80.

the macula downward and inward is the line which separated the normal retina from the detached, and I am inclined to think that later on one will find in its place a more defined white stripe bordered on each side by pigment, as is presented by typical striated retinitis. Examination of this eyeground now, without knowledge of the detachment as it existed when the patient first came to me, would certainly not lead the examiner to suspect the original condition of affairs. I am therefore disposed to agree with Caspar that some cases of retinal striation, if not all, are the end stages, or the remains of cured retinal detachments.

2. *Foreign Body in the Choroid Quiescent for Eighteen Years; Then Irido-Cyclitis; Localization by Means of the X-Rays According to Sweet's Method.**—A number of cases of localization and removal of foreign bodies within the eyeball where the X-rays proved of great diagnostic value have been presented to the Section of Ophthalmology, and in adding to the list, which again demonstrates the value of Dr. Sweet's method of localization, I do so because from the operative standpoint the case presents some interesting and, as it seems to me, important features.

J. J. C., a man, aged 47, a worker in a gas factory, came to the Jefferson College Hospital with the following history: Eighteen years ago, while chipping with a cold chisel, he was struck in the eye with a small fragment of steel. What exactly was the treatment at that time is not known, except that nothing was done to remove the fragment from within the eye, if, indeed, its presence in that location was suspected. The eye became quiet, although it contained very little sight, and never gave the man the least trouble until three months before he presented himself for treatment. Then he began to have attacks of pricking pain in the eye, followed by redness and flushing, symptoms which would subside, to be repeated again in a few days or weeks.

On examination, the right or affected eye showed a moderately fine ciliary injection, a slightly hazy cornea, and near the centre an irregular macula or deeper portion of haze. The iris was tremulous. To the edge of the slightly irregular pupil were attached the remains of the capsule of the lens, the lens itself having long since undergone absorption. The patient could distinguish fingers at eight inches, but

* Paper presented to the Ophthalmic Section of the College of Physicians and Philadelphia. Abstracted in *Ophthalmic Record*, April, 1900.

there were no details of the eyeground visible, nor could any examination be made of the vitreous chamber. The left eye was normal in all particulars.

At my request, Dr. Sweet made on two separate occasions skiagrams and gave the probable location of the foreign body as follows: The piece of steel measures about 1.5 m. m. in length and about 1 m. m. in thickness, is located 8 m. m. back of the centre of the cornea, 10 m. m. below the horizontal plane and 1 m. m. to the temporal side of the vertical plane.

After a week or ten days of treatment the patient returned to the hospital on the 8th of February and presented the following symptoms: The right eye was now very painful, there was an area of abrasion in the centre of the cornea which stained deeply with fluorescein, while the general corneal tissue was hazy and the ciliary flush of ten days before had deepened into a dark ciliary injection, the eyeball being markedly tender, and the patient exhibiting the characteristic anxious look which one so often sees in those who have long suffered from iritic pain. It was explained to the patient that even if the foreign body could be removed with the magnet, it would not be safe to allow the eye to remain, as there was grave danger that a sympathetic process might begin in the other eye. He consented to an enucleation of the eye.

Before the eyeball was removed the accuracy of Dr. Sweet's localization was tested by an electro-magnet operation. A vertical incision was made beginning 6 m. m. from the corneal margin and extending along the temporary border of the inferior rectus muscle for about a centimetre and a half. Into this the large extension point of a Hirschberg magnet was inserted and directed downward and outward, then directly outward, and finally outward and upward, but without securing the foreign body or any certain indication of its presence. A fourth attempt was then made and afterwards two negative attempts by my chief of clinic, Dr. Veasey. Dr. Sweet then took the instrument, changed the extension point from a straight to a curved one, and introduced it slightly backwards and to the temporal side. Just as the point was withdrawn, for a moment the foreign body appeared at the lips of the wound, and immediately sprang back, almost as if it had been pulled back by a cord. As it did not seem justifiable to make further attempts or prolong the narcotic, the eye was enucle-

ated without much difficulty, although it was entirely collapsed, because the vitreous was as fluid as water and had run out immediately after the scleral incision was made.

After enucleation the eyeball was divided, the blood-clot which had accumulated carefully washed away and the magnet passed all over the exposed surface, touching it here and there, especially in the region indicated by the localizing diagrams. When this exact region was reached the small body attached itself to the magnet, but it could not be torn from its surroundings, to which it was securely fastened by the adhesions which had resisted the influence of the magnet. The patient made an uninterrupted recovery.

The points of interest evidently are, first, the localization, which was confirmed by the electro-magnet and the subsequent dissection of the eye; second, the fact that foreign bodies so long imbedded in the eye as this had been are almost certain to be so encased in the tissues that, unless they could be dislodged with forceps, they could not be withdrawn on the tip of an ordinary electro-magnet, even if this came directly in contact with the body. What the result would have been had we had at hand a giant magnet I cannot say, and I regret extremely that this experiment could not have been tried.

A final point of interest is the development of the irido-cyclitis in this eye at so late a period, why it cannot be said. There is no history of injury or disease, and apparently no reason why this long quiescent body should suddenly have started an irido-cyclitis. The case furnishes a good illustration of the saying of Knapp, that although foreign bodies are often tolerated for long periods in the background of the eye, the eye is never safe.

*Concerning the filling of Collapsed Eyeballs with Physiological Salt Solution, with a Case.**—Two years ago, while attending a meeting of the Section of Ophthalmology of the New York Academy of Medicine, I heard Dr. Herman Knapp recommend the injection of warm sterile salt solution into the anterior chamber after collapse of the cornea following cataract extraction, especially in aged people. This suggestion he has followed by a communication upon this subject in the *Archives of Ophthalmology*, Vol. XXIII., 1899, p. 308, in which he details three cases. The first was a substitution of

* Case presented to the Ophthalmic Section of the College of Physicians of Philadelphia. Abstracted in the *Ophthalmic Record*, May 1900

cholesterinic aqueous and vitreous humors by physiological salt solution. The second was the filling with a physiological salt solution of an eye emptied by a cataract extraction, with perfect recovery and an ultimate vision of $^{20}_{30}$. The collapse after the extraction of the cataract owing to the escape of fluid vitreous was so great that "the scleral capsule lay folded together like a wet piece of linen, over which in the upper part the cornea projected like the visor of a cap." The third was the injection of salt solution into a collapsed eye after the extraction of a complicated cataract in its capsule, with great loss of vitreous; operative recovery, with a vision of counting fingers.

In Vol. XX of the Archives of Ophthalmology, 1900, Dr. Joseph A. Andrews communicates at Dr. Knapp's request the history of a collapsed eyeball following cataract extraction and loss of one-half of the vitreous. The accident occurred in 1891, and he restored the globe to shape by injecting warm sterile sodium chloride, 6-1000. The resulting vision was $^{20}_{30}$. Dr. Andrews has been in the habit of injecting sterile salt solution into the anterior chamber to expel cortex for some years, and has designed an injector for this purpose.

Doubtless this procedure has been practised by other surgeons. I have recently had one experience which shows the value of Dr. Knapp's advice under these circumstances to an extraordinary degree. It is as follows:

William N. Hoffman, of Lewistown, Pa., aged 64, was admitted to the Jefferson Medical College Hospital on the 25th of January, 1900, for the purpose of having a cataract extracted. He gave the following history: He had always been a healthy man; at least, there was no illness of importance in his clinical record. When he was quite young the left eye was injured by a spark, leaving a scar upon the cornea and he never had seen well from it. His right eye was serviceable until about ten or twelve years before he presented himself for treatment, when it began to be troublesome and he had not seen anything but light from it for a year before he came to the hospital. From boyhood he had suffered from misplaced cilia and what he called granular lids.

Examination.—The patient was a very stout man, of medium height, his face, particularly the nose, was covered with enlarged capillaries, although there was no history of excessive use of alcoholic drinks. In the right eye there was a ripe white cataract. Central light

perception was good and light projection normal in all portions of the field. In the center of the cornea was a moderate sized macula and the upper edge of the cornea was slightly hazy.

The cornea of the left eye showed the scar of the burn previously described, the lens was partially cataractous, there was no good view of the eyeground, the refraction was apparently myopic and the vision $\frac{4}{cc}$.

Both lids showed the result of chronic blepharitis. The ciliary borders were rounded, swollen, thickened, slightly reddened and everted and partially deprived of cilia. Those that remained were stunted, curled and misplaced, and except when removed by epilating forceps, which the patient was in the habit of using, irritated the cornea. The conjunctiva was hyperaemic; there was some chronic rhino-pharyngitis. The scalp was thickly covered with whitish scales, which I took to be a variety of seborrhoea, but which my colleague, Dr. Stelwagon, considered to be a form of psoriasis.

The circumstances were a little too discouraging to attempt cataract extraction immediately and I kept the patient in the house. The scalp was treated until the skin lesion had well-nigh disappeared, the naso-pharynx was frequently irrigated with permanganate of potassium until it got into a reasonably healthy condition, and the misplaced eyelashes were daily removed until the hyperaemic conjunctiva had assumed a fairly normal character. The patient was an exceedingly docile man, obedient to orders and quiet, and there seemed no reason why there should be any difficulty with the extraction, except for the complications already detailed.

A perfectly normal Knapp's section was made, and just as I was about picking up the iris forceps (for I intended to make a small iridectomy), but before I had touched the iris, the patient suddenly and powerfully contracted his lids, pressing the arms of the speculum against the eyeball so that the lens was forcibly expelled and shot out some distance away upon the table. This expulsion of the lens was followed by a gush of rather thin looking vitreous. The speculum was quickly removed and the eye closed. The patient, curiously enough, in spite of this sudden loss of control, became again the docile man he had been before the operation. The lid was cautiously raised, the flap was found everted and was pressed back into place, and the iris, which had been torn from its entire ciliary margin to the horizontal

diameter of the cornea, was seen to be anteverted and lying like a small scroll in the bottom of the anterior chamber. After instilling a few drops of sterilized cocaine solution, the lid was again elevated with the finger, an iris forceps introduced into the bottom of the anterior chamber and the curled-up iris brought to the edge of the wound, where Dr. Veasey cut it off evenly and smoothly, so that when this manouever was completed the appearances were those of a large iridectomy. Three or four strings of vitreous hanging from the wound were now abscised and the collapsed eyeball, for it was quite collapsed, filled with a warm sterile physiological salt solution. The edges of the wound became perfectly coapted and the globe entirely rounded, and what a few moments before had seemed like a hopelessly lost eye assumed all the appearances of one after a normal extraction. The patient not only counted fingers, but readily saw the students standing round the operating table. The usual dressing was applied and the eye was not opened for five days, when everything was found in place, the wound perfectly closed and the patient easily able to count fingers.

On the 17th of March, vision with a $+11.5$ $\text{C}+3\text{C}$ axis 180 was $^{20}_{50}$ with -1.4 added to this, $D = 0.75$ was read at 25 c. m. The eyeground could be readily studied; the optic disc was an irregular oval, of grayish color, with a slight atrophic crescent at the outer side, the fundus, I think, indicating previous myopia. Throughout the vitreous there were several large strings of opacity which did not materially interfere with sight.

Undoubtedly Dr. Knapp is correct in stating that the chief value of this procedure is, first, that it fills the eyeball and prevents the sucking in of infectious material from the conjunctival sac, and, second, that it prevents detachment of the retina. I have never used physiological salt solution to clear out cortical matter, because ordinarily I do not believe in the advantages of injecting fluids into the anterior chamber, but I have used the physiological salt solution in one case of greatly collapsed cornea after a normal cataract extraction in an old thin woman.

Note.—The patient described in the paper was recently seen, namely, on the 13th of June, 1900, and his vision then with his correcting glass was $^{20}_{XL}$ —. The retina was perfectly in place and the patient enjoyed the benefits of this vision. He came for advice on account of an attack of conjunctivitis.

*A Case of Cured Sympathetic Ophthalmitis.** That the prognosis of sympathetic ophthalmitis is always grave is a matter of common knowledge, and well-established recoveries are rare. According to the observations of Rogman, Randolph and other surgeons, "a patient who has passed two years without a relapse may be regarded as comparatively safe." Therefore it would seem that the following case is cured: †

A man, aged 29 years, applied to the Eye Dispensary of the Jefferson Medical College Hospital, March, 1893, with the history that eleven weeks prior to this date he was injured by a piece of steel striking the left eye. Sight was immediately lost, and when examined there was a large cut through the upper ciliary region which had healed with a puckered cicatrix. The iris was inflamed and bound to the capsule of the lens, the anterior chamber shallow, the eye slightly shrunken, soft to the touch and very tender on pressure—in other words, a traumatic irido-cyclitis with beginning shrinking and in all probability a retained foreign body. The entire right eyeball was slightly injected, while around the margin of the cornea there was a zone of fine pinkish injection. The iris was mobile, but at the lower margin of the cornea there was a faint haze and one spot of the iris was thickened. Direct vision was normal, the field of vision was uncontracted, the optic nerve was hyperemic and there was slight tenderness in the ciliary region. In spite of treatment, at the end of forty-eight hours the spot of infiltration in the cornea deepened, the characteristic triangular deposit of opaque dots in Descemet's membrane appeared and a synechia formed in the lower margin of the iris.

Vigorous measures, which consisted of leeching, atropin, protiodide of mercury and full doses of quinine relieved the symptoms in the sympathizing eye, the excited eye having been promptly enucleated.

The histological examination of the latter revealed an adherent corneal cicatrix; plastic cyclitis with infiltration of the choroid (malignant uveitis); inflammatory exudate in the vitreous; slight papillitis and neuritis of the ciliary nerves. The specimen was not examined for bacteria by culture methods, but microscopically in suitably stained sections micro-organisms were not found.

* Paper presented to the Ophthalmic Section of the College of Physicians, Philadelphia. Abstracted in the *Ophthalmic Record*.

† This case formed part of the subject of a clinical lecture in the Jefferson Medical College Hospital. See *Therapeutic Gazette*, March 15, 1893.

After one month treatment the patient left the hospital, the eye being white and quiet and the vision normal. Once or twice in the interval I have heard from him, but only indirectly, but on the 26th of October, 1898, he was examined by the physician who sent him to me originally, Dr. Hollenbach, who reported that his eye was normal in every respect, the man having continued his occupation from the day he left the hospital until that date without inconvenience.

Five years and a half of immunity from relapse may surely be considered cure. It is to be noted that the manifestation of the ophthalmitis was in the least malignant form, that is the form which is usually described as papillitis with sympathetic serous iritis, a form, however, which may readily pass over into the more malignant variety, the so-called sympathetic uveitis. It is interesting to note the papillitis which was present with the iritis, a symptom which so far as my own observation is concerned is always present in these cases, and I believe the very first one to manifest itself, coming, perhaps, in advance of the lesions in the anterior portion of the eye.

A MODIFICATION OF THE HOLMGREM WOOL TEST FOR COLOR BLINDNESS.

Geo. F. Keiper, A. M., M. D.

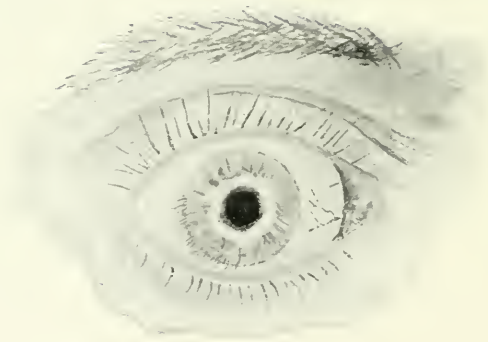
LAFAYETTE IND.

Eye and Ear Surgeon to St. Elizabeth Hospital, St. Joseph Orphan
Asylum, Children's Home, Indiana State Soldiers'
Home, Pension Bureau, Etc.

The modification briefly described consists in selecting from the 125 wools of the Holmgrem test 40 wools which correspond in shade with those of the Thomson test and numbered with brass tags as in the Thomson test. These are kept in a box separate from the other wools of the Holmgrem test and are used as described by Thomson. The rest of the wools are also numbered with brass tags. No. 41 is a shade of No. 1, and so on through, getting shades to correspond with the successive numbers of the Thomson scale.

The advantages gained are: First, within the same box are the Thomson and Holmgrem tests, thus saving the expense of buying both tests separately; and, second, a wider range of testing is permitted.

The box of Holmgrem wools used is that sold by Meyrowitz.



Keratitis Ulcerativa Marginalis.

KERATITIS ULCERATIVA MARGINALIS.

W. A. Martin, M. D.

SAN FRANCISCO.

ILLUSTRATED.

In the April number of this Journal, 1899, I reported a number of cases under the heading of "Keratitis Ulcerativa Marginalis." This trouble, as I stated at the time, I was unable to find described in any of the literature to which I had access. I thought it probable that if it had been described before, that it would attract the attention of someone more familiar with the literature.

After a continued search for a description of the trouble, I am a year later in the same position. Since the time I described the cases a year ago, I have seen quite a number of cases of a similar nature, but only two that were typical, one of which I here describe.

Mr. L——, an old friend and schoolmate of mine, who had been living in the Hawaiian Islands for the past fifteen years, was spending his vacation here. He came to my office occasionally in a friendly way. He spoke of his eyes annoying him at times. I thought probably his refraction was not properly corrected and tested his eyes under the influence of a mydriatic, but did not find any different result from my predecessor.

He came to my office shortly after with the left eye looking congested and on close inspection I found a line of small infiltrated spots along the line of the arcus senilis of the left eye, on the outer side. The congestion was limited to the portion of the circumference occupied by the infiltrations, extending about two or three millimeters on the sclera beyond the sclero-corneal margin.

I watched the spots carefully from day to day treating the eye with I — 7500 bichloride solution and calomel; about the third day the

original spots broke down leaving in their place a long abrasion, new spots appearing farther around the arcus, which also underwent the same transformation. This condition repeated itself until the whole cornea had been surrounded, the process moving in the same way as the hands of the clock, the last segments invaded did not break down, but underwent resorption. The spots never recurred in any of the segments already invaded and there was no opacity remaining.

About a week after the process was arrested in the left eye I noticed a light congestion on the nasal side of the right cornea. The next day the infiltrated spots were present and were broken down on the third day; this was the only segment of the left eye in which the surface was broken. The process extended around the eye also in the direction of the hands of the clock until about half of the circumference of the cornea was included when it was arrested. I concluded that the treatment was responsible for the limited process in the left eye, as it was commenced immediately the trouble was recognized, while in the right eye the process had three or four days start.

In this case there was not the severe pain that I have noticed in some, but at times it was quite annoying.

Dr. Duane of New York wrote me stating he had noticed similar cases, saying he had classed them among the catarrhal ulcers of Fuchs and asking if those I described were not the same. They are not the same, although occurring in the same region, as in the cases I have described the condition is a primary one, while the catarrhal ulcers of Fuchs are secondary.

I believe there is a chain of lymph spaces underlying the corneal epithelium marked in later life by the arcus senilis and it is in these spaces that the infection travels. The opacity in later life on the line of the arcus is a result of the same process that produces arteriosclerosis.

While in the condition shown by the illustration, I sent the case to Dr. F. B. Eaton, who suggested a water color which I had made and submitted to his inspection for control.

The picture is taken from the right eye and shows the process during the stage of infiltration, as it appears just before the point of breaking down or absorption. The points above on the left I have added in order to show the manner of progress, as the condition shown was

the final appearance of the process, it having totally disappeared two days later.

In Leber's Clinic in Heidelberg, I saw several cases of Rand Keratitis, which probably on closer inspection might have revealed a similar condition. I have been in the habit of speaking of similar cases as marginal keratitis in my services in the Polyclinic. In these cases I found a heaping up of the epithelium around the margin of the cornea, with congestion, but there is an absence of infiltration along the line of the arcus as in the cases I have described under the caption of Keratitis Ulcerativa Marginalis.

The Marginal Keratitis described by Fuchs is of a still different type. It, according to description, would belong in the same class as parenchymatous or interstitial Keratitis. The transparent zone which adjoins the schlerio-corneal margin is obliterated in the "Rand-keratitis" of Fuchs and the process is a chronic one, while in the cases I have described the transparent zone is always present, although crossed by the minute capillaries, and the process is an acute one.

135 Geary St., S. F.

AN ADJUSTABLE TRIAL BOX FOR SQUARE PRISMS.

By Vard H. Hulen, A. M., M. D.

SAN FRANCISCO, CAL.

Formerly House Surgeon of the New York Eye and Ear Infirmary.

ILLUSTRATED.

For accuracy in the various prism tests of the ocular muscles the writer prefers the ordinary square prisms to any instrument that he has seen for this purpose, though the convenience of apparatus with revolving prisms is not denied. In order that square prisms may be used with greater ease and rapidity a trial box for holding them has been devised and mounted upon the arm of Stevens' phorometer. Thus the prisms when dropped into the leveled box are in perfect position before the eyes, and additional prisms are quickly added or extracted as desired. The minimum discomfort to the patient and examiner is attained and the possibility of error or confusion is avoided.

The accompanying cuts make plain the mechanism and manner of using this simple instrument. Figure 1 shows that the prism cells are adjustable to the pupillary distance in the same manner as the trial frame, the scale being marked on the top of the plate. The movable guards keep the prisms erect and readily permit the introduction of other prisms. On the front of the cells are clips to hold lenses for correcting the patient's presbyopia when testing at the reading point. Figure 2 shows the instrument when testing at thirteen inches. The square tube which supports the card-carrier has on its upper surface a scale reading from eight to eighteen inches, and is readily removed when the tests for distance are desired.

This instrument can with advantage be used in place of Stevens' phorometer, and the muscular conditions may also be studied by means of the Maddox rod, Maddox prism, red glass, etc., used in this apparatus. This box enables the operator to use correcting prisms for hyperphoria before testing the horizontal deviations with the Maddox rod.

The trial box was manufactured for the writer by the Standard Optical Co. of San Francisco.

406 Sutter Street.

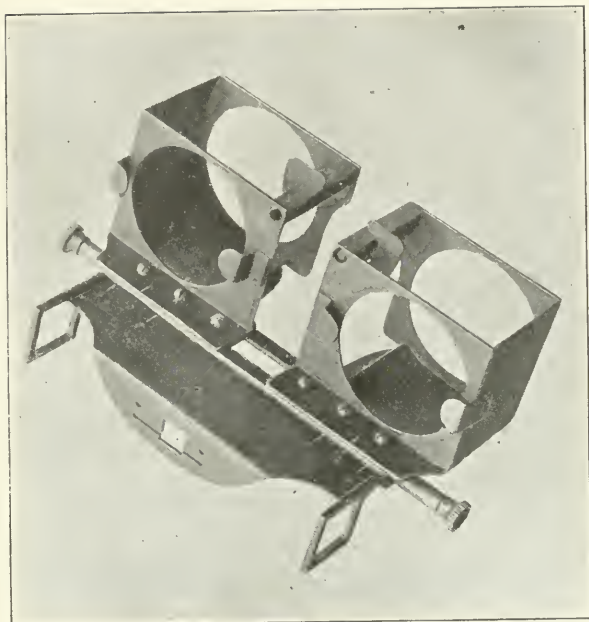


FIG. 1.

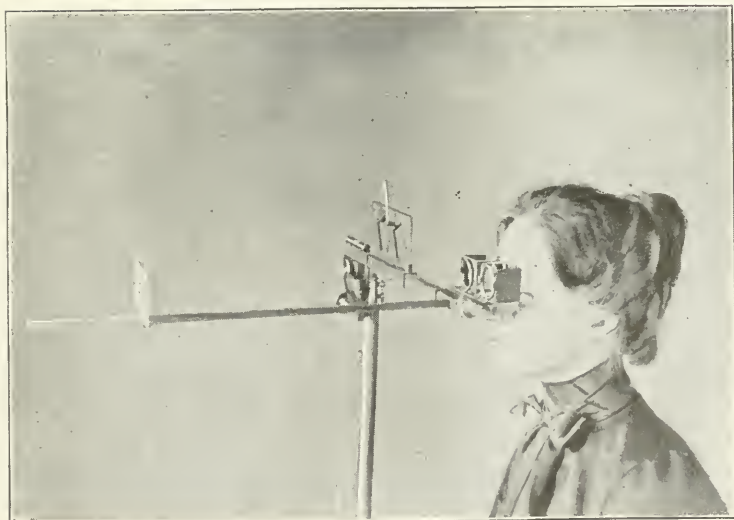


FIG. 2.

VENOUS PULSATION IN THE FUNDUS OCULI.

By M. F. Weymann, Professor of Ophthalmology and Otology, Cent. Med. College.

For the last two years I have, in an effort to systematize and make complete my clinical observations, filled out with every patient an exhaustive interrogatory containing, among other things, a demand for a drawing of the fundus, etc. This latter part not only took a vast amount of time and effort, but also consumed a great deal of patience, as the picture to be drawn was gone from my mind when I ceased looking. By copying in small portions, however, I soon succeeded. This enforced attention to detail enables me to make the following report:

1. Venous pulsation on and about the disc is very common, perhaps the more under ordinary physiological conditions.

2. It is most easily seen in physiological excavations, and where the veins twine around arteries or make a bend (loop) as they emerge from the crater-like center of the disc. In such places the veins look darker, owing to the doubling of the blood column produced by the more or less exact superimposition of the two turns of the loop or spiral.

3. The venous pulsation differs from the arterial pulse seen in hypertension of the ball. The latter is a true pulse, quick and flash-like, and synchronous with equidistant arteries, while the former though possessing the same frequency as the cardiac beat, is not synchronous with equidistant arteries. It appears a little later, is slow and heaving and easily followed in its wave, in marked instances even beyond the scleral ring. A true venous pulse may sometimes be observed in excessive glandular activity (salivary glands), when the functional dilatation of the capillaries is so great and the arterial tension so high that the pulse wave may reach the venous radicles. In this latter case the wave is lost, as the calibre of the venules increases.

Not so with the pulsation on the disc; it is most marked where the veins are largest (point of emergence) and lost as the calibre diminishes, hence

4. While a pulsation, it is not a true wave caused by internal distension. It is not a true pulse, but without a doubt produced by such a one.

5. Anatomical arrangement places the arteria centralis retinal and the vena of the same name closely together, as they pass the tough, unyielding scleral ring (lamina cribrosa). Now, in thin-skinned people a superficial artery of even small size will raise visibly the skin with each beat. This same distension at the scleral ring spends its force chiefly to the disadvantage of the V.cent.retina, the latter being compressed, although in part only. Now, the steady flow of the impure blood is suddenly interfered with, and its momentum spends its force in stretching the lax walls of the veins. The thing could be aptly illustrated by a very elastic rubber tube attached to the stop-cock of a bath room lavatory. If during the flow of the water one were to pinch the tubing, the same kind of a wave would appear, and the more marked, the nearer the compression would approach complete obliteration of the lumen of the tube. In this manner the pulse expansion of the arteria centralis retinae compresses the lumen of its accompanying vein, which action, in damming up the venous flow becomes even more accentuated by the circumstance that it travels in a direction opposite to the venous current.

Whenever the two vessels are sufficiently far apart no such effect could be produced.

7th and Felix Sts.

St. Joseph, Mo.

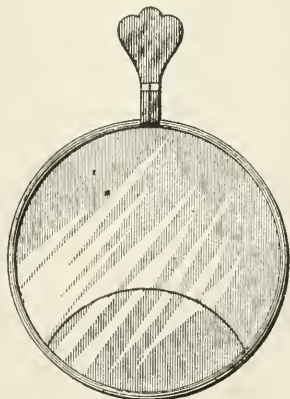
PLANO-BIFOCAL-SEGMENTS IN TRIAL RINGS TO FACILITATE PRESBYOPIC REFRACTION.

By J. N. Rhoades, M. D.,

Assistant in the Eye Department of the Philadelphia Polyclinic and College for Graduates in Medicine.

Having had considerable trouble in convincing many of my presbyopic patients of the advisability of wearing bifocal glasses, and also being annoyed after having corrected their distinct vision, by being compelled to change the spheres, double them up, calculate, etc., in order to correct their near point, I have had Mr. D. V. Brown, the optician, make for me a set of, what I call, "Plano-Bifocals," in trial rings.

I have had him make them for me in the simplest form, taking a plano glass 1.5 inches in diameter, and cementing upon it a bifocal segment, (as may be seen in the accompanying cut), 33 mm. in length and about 18 mm. in height. The size of the segment is a little larger than the average generally worn, especially in height, and is advocated on account of the fact that the "plano-bifocal" after having been placed in front of a complex distant correction, i. e., sphere and cylinder, is not as near to the eye as is the ordinary bifocal when firmly fixed on the spectacle lens.



It will be found that this set of lenses facilitates and shortens the

examination for presbyopia very much, as all you have to do after correcting the distant vision is to drop these lenses into the trial frame in front of such correction. Then, after you have finished your refraction for near work, you have the entire correction in the trial frame, which you can note at once, thereby lessening the chances of mistakes, which so often occur, in adding and subtracting spheres.

It will also be found that the patient will not be mystified by having his distant vision cut off by the addition of strong spheres, and will not exclaim, as they often do, "I cannot see through these."

Another advantage is, that you can show your patient what it means to have the "reading glass and distant glass both made in one," because, after the examination is completed, and while the trial frame is still in position, the patient may be given a paper and told to read it a while, and then be directed to read the test letters, at six meters away, or at the distance the surgeon may have them in use; to look around the room, or out of the window, and then back to his paper, which it will be found makes a very strong, favorable, impression upon him.

The set should contain duplicates from plus I. D. spheres to plus 6 D. A pair of plus 0.50 might be added for those who use them, and, of course, the set could contain numbers running above plus 6.00, D. But it is doubtful, in my mind, whether even a plus 6.00 D. segment should ever be prescribed on account of the chromatic aberration. The set, then, would contain twenty-four trial lenses, running from one to six diopters, including the intermediate halves. The strength should be plainly marked upon the handle of the rings, in the same manner that other trial rings are marked.

Of course the set could be made by fixing the bifocals into the rings without their being cemented upon the planos, or, they could be made up like any of the bifocals in use, viz: perfection, split, or solid-ground. In conjunction with the set I think that it would be well to have mounted a sample lens, or, perhaps a sample pair, of each kind of bifocal glasses in use, in order to more clearly demonstrate to the patient the kind best adapted to his work.

*EPIPHORA; LACHRYMAL ABSCESS; CONGENITAL ABSENCE OF LACHRYMAL PUNCTAE; STRICTURE OF THE LACHRYMAL DUCT.

By L. Webster Fox, A. M., M. D.,

PHILADELPHIA, PA.

ILLUSTRATED.

I present to you today a group of cases which possibly in the whole range of ophthalmic surgery gives more trouble to the surgeon and is more discomforting to the patient than any other disease with which we have to deal. The least exposure to cold or draughts of air causes the tears to flow over the margins of the eyelids, and in many cases produce eczematous eruptions on the cheeks. The presence of pus in the lachrymal sac causes not only an inflammation of the nasal cavities, but also of the conjunctiva, and this condition leads to radical changes in the delicate tissues of the eyelids and Schneiderian membrane of the nose. Not only is the appearance of the eye repugnant, but the foul odor from the diseased bone in the nasal cavity is most offensive, and renders these unfortunate patients objects of sympathy. It therefore becomes your duty as surgeons to try to alleviate their sufferings as much as possible.

The seat of the trouble may exist anywhere along the track of the canal, from the opening of the puncta lachrymalia to its termination in the nasal fossae, and affects all ages, from the newly born to the aged. As you are aware the lachrymal gland, which secretes the tears, is situated in the orbit in the upper end outer quadrant. This gland, in its normal condition, secretes sufficient fluid to lubricate the eyeball and to aid in keeping the cornea nourished and in washing away extraneous matter, which otherwise would find lodgment on the transparent cornea and cause dimness of vision and probably permanent loss of sight by inflammatory reaction. When the epiphora is not induced by an affection of the mind, any inflammation of the conjunctiva will be sure to superinduce a hypersecretion of tears. This inflammation may affect the puncta, and then we should simply have an

* Clinical lecture delivered to students Medical-Chirurgical College.

epiphora due to closing of the mouth of the canal by excitation, also stricture, diseased bone or abscess of the sac or canal leading on to graver conditions.

Case 1. A baby four weeks old. The mother tells me that a slight swelling was noticed in the child's right eye a few days after birth; a mild eye wash was applied and little or no trouble followed; the swelling disappeared. On account of the constant watering of the eye the patient was brought to the clinic. Upon careful examination, pressing the fingers on the nasal side of the sac, pus escapes through the puncta. As the pus escapes from the top of the canal there is evidently an obstruction at the nasal end of the passage. What is the treatment? Unless the canal is opened and drained freely, destruction of the lining membrane of the passage will take place, leading on to necrosis of the bone and the child be an object of misery during life. The antiphlogistic method was followed, which was proper and should always be tried first; failing, more radical methods must be carried out. In this case I shall open the canal with a Weber's knife, then insert



Fig. No. 1. Weber's Knife.

a No. 3 lead style and keep it in the canal until the pus has entirely disappeared, then follow this up by inserting a silver canula. Fortunately but few children of this age are afflicted, but when they are brought to our attention this treatment is the best to be followed; as the child grows the canal must be kept open by passing different size probes and reinserting a gold or silver canulae.

Case 2. A young woman, who has had lachrymal trouble for at least five years, commencing, as she tells me, by a simple overflow of tears and eventually ending in chronic discharge of pus from the tear sac. This case forcibly illustrates the failure of treatment at the hands of the most able ophthalmic surgeons. For years she had all kinds of treatment, and I must also say the course I have pursued has not been more successful than that of my confreres. A short time ago I inserted two silver canulae; one carried off the secretions perfectly, the right did not, showing evidence of some obstruction. I renewed both canulae from time to time, passed probes, and so far as I was able to judge by the sensation of feeling was sure that I had dilated the canal



FIG. 2.

Skiagraph of two Canulae in Lachrymal Ducts.—Occipito—Frontal view, showing deviated Septum.



FIG. 3.

Skiagraph Silver Canula. Lateral view.



FIG. 4.

Skiagraph of Silver Canula after being buried in canal one year.

in the nasal fossæ. I even went so far as to change the size of the canula, putting in the canula No. 3, which is the largest size. I expected better results than I obtained. To ascertain the cause and possibly to aid me in the treatment, I had Dr. Kassabian take a skiagraph of the patient's face and the photograph which I hand you is the result. I find a deviated septum which has changed the course of the lachrymal canal and the mouth of the style is closed by the tissues of the lateral wall of the nostril. After discovering this I had the tube or canula cut off so that it would only extend to the roof of the nostril. The other canula projects directly into the nostril.

Case 3. Is a very rare instance of congenital absence of the puncta, yet strange to say that until the last year or two the patient did not suffer much from epiphora (watery eye). He is now leading an out door life and on windy days finds the hypersecretion of tears exceedingly annoying, so much so that he contemplated giving up his vocation.

In this case I opened up both puncta lachrymalia—the incision was made where the puncta should have been. I found the canals patent, but very narrow. I then passed a Weber's knife through the canal, the sac, and down through the lower canal. It was with difficulty that I was enabled to pass a small lachrymal probe through the canal. By gradually dilating it I managed to pass a full size probe and insert two No. 2 silver canulae. (Fig. 3.) I had Dr. Kassabian take a side skiagraph (the photograph of which I pass to you gives the exact position of the canula), and from the fact that the tears are carried off as rapidly as they are secreted proves that the operative method adopted has been successful.

Case 4. This little girl, five years of age, has had more or less inflammation of the right lachrymal canal since three months old. Her mother tells me that when an infant, shortly after birth, a swelling was noticed, which, when pressed upon would disappear and the eyeball become covered with pus—evidently the pus escapes from the sac and spreads over the eye. About a year ago I opened the canal and inserted a silver canula. The mother did not return with the child to the clinic and in consequence the upper opening of the canal closed and has buried the canula in the lachrymal canal. The tears were carried off through the puncta in the upper eyelid, communicating with the canula which opened into the nostril. I had Dr. Kassabian make a skiagraph

and I now show you the photograph. As the canula has been buried in the tissue for over a year (Fig. 4) I shall open the closed canal, take out the canula and insert one of my latest models, which, I think, will answer the purpose better, and I will also insist that the child be brought to the clinic to keep the upper passage open.

As regards treatment of epiphora due to constriction of the orifice of the puncta or to conjunctivitis. First, for the narrowing of the puncta we use a Nettleship steel dilator, which I show you. Mr. Nettleship made an improvement on the old style dilator (which was

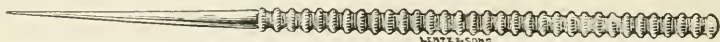


Fig. 5.

Fox Improved Dilator.

formerly used and accompanied every French instrument box) by making a steel dilator with fluted edges running parallel with the handle; the objection to this instrument is that in trying to insert it into the constricted puncta the instrument will slip through your fingers. To overcome this fault I had one made exactly after the Nettleship instrument, but with filed edges after the style of American dental instruments. This gives you a better purchase and can be used in the gentle manner it should, without slipping.

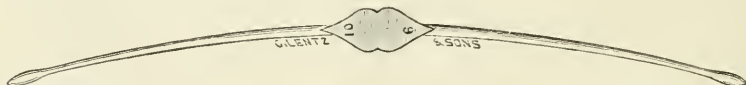


Fig. 6.

Favorite Probes.

A weak solution of Nitrate of Silver (one-half grain to the ounce) is also a very excellent local remedy. Dilating the puncta, having the nasal passages examined, and, if any disease exists, having that attended to, also remedies the epiphora. If a deviated septum is the cause, have it straightened; sometimes errors of refraction, especially of hyperopia, produces excessive lachrymation. These errors should be corrected to insure good results.

The style, as a means of dilating the nasal duct, is a very good method. We take a piece of lead wire, pass it down into the canal, cut it off and bend over on the cheek. A thin wire is to be followed by a succession of thicker ones until the full diameter of the duct is reached. After each insertion of a style the passage should be

on every re-application by tepid injections of boracic solutions or protargol. When the canal has the appearance of being healthy and free from discharge, a silver tube (Fig. 7), such as I show you, should be inserted.



Fig. 7.

Silver Canula Fox Model.

As to the kind of canula, each ophthalmic surgeon has his preference. This canula is after an original model used by Nathan.

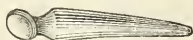


Fig. 8 and 9.

Nathan. Dupuytren.—Old Style Canulae

The Fig. 9 represents a canula devised by the celebrated French surgeon Dupuytren, an excellent one in its day. Since its introduction modifications have been made.

In cases like these I show you the canal should be cut open with a Weber's knife, and this followed by the passage of a good sized probe through the channel and followed by the insertion of a silver tube. The slitting of the canal; passing of the knife downward, is apparently a simple operation, but it is not free from danger; false passages are easily made, or the knife may break by becoming wedged in the bony canal. Great care must be exercised, especially when there is necrosed bone, such as is present at times.

As regards treatment in general, mild astringent washes do good in certain cases, as do also dilatation of the puncta or the whole of the canal, and syringing as first suggested by Anel in 1712; but all of these count as many failures as cures. The modern treatment, as adopted by the French and German ophthalmic surgeons, consists in the introduction of fine probes, which of course, do not dilate to any extent. While many of the English surgeons, on the other hand, dilate the canal to its fullest calibre. In this country ophthalmologists are divided as to which is preferable. My experience compels me to think

that the larger size produces the best results, and I follow it immediately with the introduction of a silver canula as I have above shown. I show you a skiagraph (Fig. 10) of a case in which the large size probe is inserted.

The details of the operation are carried out as you observe. I stand behind the patient, supporting his head against my body, and as the operation is being performed upon the left eye, I press the thumb of my right hand over the cheek bone and just along the lower edge of the eyelid, which by this action is drawn slightly downward and outward. The bulbous point of the Weber knife is inserted into the punctum and the handle is dropped below the horizontal plane of the eyelid. With the cutting edge of the blade inclined towards the eyeball the knife is pushed towards the nose, and when the point has touched the nasal bone the handle is raised to the vertical position; the cutting edge is rotated forward and is pushed firmly, yet gently, into the canal, burying the blade well up to the handle. As you notice, I have done this without difficulty and without giving much pain to the patient. I withdraw the knife, and by gentle pressure for a few minutes stop the bleeding. A silver probe of a large size, which passes well down into the canal is now inserted and is allowed to remain for several minutes, then withdraw it and place a silver canula in permanent position. The tube is allowed to remain in the canal for several days, when it will be removed, cleansed, and returned to its place. This may be repeated at intervals of several days, until the secretions have disappeared and a free opening is obtained,—when a canula is to be worn permanently I always have it made of gold. The present canula is a modification of the Strawbridge device, somewhat further improved by Bickerton and myself.

When we meet with a patient who has had more than one operation performed and cicatricial tissue has formed along the mouth of the sac it would be impossible to use a Weber's knife. We must try to make the opening with a different knife, and for this purpose nothing approaches a Stilling blade, such as I show you.

The method of inserting and passing the knife downward is the same as in other operations. The incision is followed by the insertion of a large-sized probe and canula. A very simple method of proving whether the canal is open is to have the patient shut his lips and close his nostrils with his thumb and finger, and then try to force the air



FIG. 10.

Skiagraph showing Silver Probe in Lachrymal Canal.



FIG. 12.

Gold Canula. Occipito—Frontal View.

through the lachrymal canula. I am going to ask the patient to do this. You notice that he succeeds. The after treatment consists in simply applying absorbent cotton, saturated with boracic lotion to which a little Vini Opii has been added (about two drachms to a four ounce mixture).



Fig. 11.

Stilling's Knife.

There are several important points to which I must call your attention before we dismiss these cases, and that is, first, great care must be observed in keeping the slit from the puncta to the opening into the sac free. This is easily done by running a blunt-pointed probe along this track daily for two or three days, also syringing the canal three times daily with an Anel syringe, taking out the canula, passing a large size probe and reinserting a clean canula.

THE OPHTHALMIC RECORD.

*A MONTHLY REVIEW OF THE PROGRESS OF
OPHTHALMOLOGY.*

VOLUME IX.

CHICAGO, AUGUST, 1900.

No. 8. NEW SERIES.

EDITORIALS.

THE EXPLOITING OF NEW EYE INSTRUMENTS.

The rise and fall of some instruments used in ophthalmic work is interesting and instructive. Hailed at their first appearance with extravagant praise, they minister to the pockets of their makers, and correspondingly deplete those of their purchasers. Some of these instruments, after extended trial become permanent and invaluable additions to the armamentarium: others, like the military mule, have a back-two-edged-sword sort of action, redounding neither to the reputation of the oculist or the good of his patient.

We can recall the extravagant claims made for the Javal-Schiotz ophthalmometer, which was to render cycloplegics obsolete, and the correction of astigmatism child's play. A valuable help, (but an unconscionable liar at times), its real usefulness and its limitations, are now pretty well understood:—all can do without it who have mastered the main principles of skiascopy and subjective refraction tests and their application, but it is a useful adjuvant to other methods.

Just now the Haab Magnet and other gigantic coils are at the zenith of their reputation and,—it must be confessed—of their destructiveness. Undoubtedly it is an imposing, and to the patient, awesome piece of furniture. In action it will sometimes whip a bit of steel with lightning speed from an afflicted optic, and, moreover, in accomplishing this, it will mangle the internal economy of that optic to an extent which discounts the original injury by a wide margin. It can, when appropriately manipulated, detach the retina, or pierce the lens, lacerate the ciliary body and play the mischief generally.

Some unprogressive (?) oculists are contented with a medium-sized, or even small, magnet, and at times timidly venture to mention to the engineers who handle the throttle of the Great German Apparatus, that such minute instruments are actually better and safer! In due time, no doubt, we will learn the final result of the contest between these Davids and Goliaths of the magnetic armies. F. B. EATON.

CORRESPONDENCE.

THE CROSSED CYLINDER.

Editors of the Ophthalmic Record:

Dear Sirs:—Dr. Dunn's courteous strictures upon the cross cylinder in the determination of the refraction, (in the June number of the Record,) are probably such as might occur to a refractor to whose attention the matter is brought for the first time. At the same time his remarks in connection with the illustrative case serve to bring out the advantages of the cross cylinder. The cross cylinder is employed as a matter of routine in every case and correctly and quickly leads to the proper cylinder. It is true that a minus cylinder will also give the true refraction in this special case ($-1.75 \div 1.00$ cy. ax. 90° being the true refraction—an approximation $-2.25 \div -.50$ cy. ax. 90° having been placed before the eye); but this is an accidental result. How are we to tell that a minus cylinder will give the result rather than a plus cylinder? or at 180° rather than at 90° ?

I do not deny that trials enough with plus and minus cylinders (and spheres) will usually lead to the result; but the method of the cross cylinder substitutes a definite procedure for an indefinite and haphazard one.

T. B. SCHNEIDEMAN.

[In all cases, whether the plus or the minus cylinder is required, whether its axis should be parallel or perpendicular to that of the cylinder already before the eye, the cross cylinder indicates definitely whether a stronger or a weaker cylinder is needed.—E. J.]

REPORTS OF SOCIETIES.

SAN FRANCISCO SOCIETY OF EYE, EAR, NOSE AND THROAT.

June Meeting.

The President, Dr. Henry L. Wagner, presided.

The President presented a man aged 74 who had consulted him complaining of severe pain as of a fish-bone, on the left side of the dorsum of the tongue, but nothing was visible to account for it. On the following day there was a little redness. A week later a Bluish Cyst had formed which gradually became opalescent, and now, in three weeks is 2 centimet long by one centimetre wide and still transparent at its centre. The President asked the members for a diagnosis, but none was given.

Dr. Redmond Payne presented a case of Affection of the Cavernous Sinus with Objective Tinnitus. Three years ago an insect got into the right ear, and the patient's efforts to remove it caused bleeding from the ear with much swelling and pain. Chronic purulent discharge followed, and two months later a clicking sound which was not synchronous with the pulse, movement of the jaw, or any other movement of the adjacent structures. It would last only a minute or so, but occurred several times a day. Two years later the case was seen by Dr. Powell, of Sacramento, who did an ossicectomy.

A few months later patient was seen by Dr. Powers of this city, who did a simple mastoid operation which failed to relieve an intense pain suffered by patient and referred to the ear. The seat of this pain was then located by Dr. Powers at a point on the posterior wall of the ext. aud. canal. Dr. Powers then chiselled away this part of the wall without relief. On both occasions, while patient was under the anaesthetic, a marked varicose condition of the veins of the right brow

and eyelids was noticed. A right facial paralysis also developed about this time.

Some weeks later the patient came under the care of Dr. Payne. He was then in a delirious condition, having been found wandering about town. Temperature 101; pupils widely dilated and the right papilla hazy, suggesting the beginning of papillitis. There was an unhealed wound of the right mastoid, a purulent discharge from the right ear, the tissues of the right eyebrow swollen, the veins varicose, eyelid somewhat swollen, but no exophthalmos, and a right facial paralysis as at present. At this time the clicking sound could be heard 15 feet from the patient. It was occasionally heard in the left ear too, but only a few inches away.

The conditions continuing, after several weeks Dr. Payne did a complete Stacke operation, curetting out a lot of softened bone from the apex, antrum and attic. The sigmoid sinus was exposed for about half an inch. There was no pulsation, but as the wall appeared clean and healthy and the jugular vein did not appear corded, the sinus was not laid open. The wound healed very well, and the clicking sound has entirely ceased in the right ear, but the patient still hears it. At present there is a more or less deep seated pain in the right ear and over the right brow, a low grade of fever most of the time, but always under 100, and sometimes 99. There have been no rigors, and no especial sweating. There is a marked and permanent varicose condition of the veins of the right eyebrow, and the retinal veins are very tortuous. Vision R. $\frac{20}{400}$. The veins of the brow and retina being branches of the ophthalmic vein, Dr. Payne suggested a possible partial thrombosis of the right cavernous sinus and an established collateral circulation and that perhaps this venous current might be indirectly affected through obstruction of the superior petrosal sinus at the point where it empties into the sigmoid sinus. The question he wished to ask is: Is the trouble the patient now suffers directly or indirectly due to the trouble in the sigmoid sinus, and is an operation upon the latter indicated?

Discussion. Dr. Eaton thought the appearance of the retinal veins, the varicose veins, together with the history, indicated thrombosis of the right cavernous sinus. He had seen the peculiar condition of the fundus in a case of his own in a patient with septic endocarditis. He recalled the case of thrombosis of the retinal veins published a number

of years ago by Knapp, the appearance of the fundus in this case similar to it.

The President said he considered the appearance unlike that of Knapp's case.

Dr. Pischl presented a man who had been injured in the right eye by a Bit of Steel. A skiagraph had been made which failed to show the foreign body. Another one was made by another operator, and Dr. Pischl showed the plate and print which both showed the foreign body imbedded in the sclerotic and projecting into the vitreous, being about 4 mm. by 3 mm. Dr. Pischl explained the failure of the first skiagraph as being the result of the shaking of the room by the turning of the static machine wheels by hand, whereas in the second a motor actuated the machine without vibration. The foreign body was extracted by Dr. Pischl's giant magnet, but much of the retina is detached, though the eye is quieting down.

Dr. Payne presented a specimen of Glioma of the Optic Nerve in a girl baby aged 2 ½. The eye began to "turn in" a few months after birth, and exophthalmos began about one year later. Pressure upon the globe backward met with resistance. There was slight vision, and the pupil appeared normal in size, but reacted sluggishly. The fundus normal. As the tumor had grown very slowly and there had been no pain, it was thought to be non-malignant. In operating, the external canthus was laid open widely and an attempt made to dissect the tumor out and leave the eye, but this was found impossible, as the tumor was found to be in the nerve. The patient made a good recovery, and since the operation 4 months ago has been in excellent health. The specimen shows that the tumor is confined entirely within the sheath of the nerve; that the nerve tissue is entirely destroyed and its place taken by glia cells; that the tumor has been removed close up to the optic foramen, and it would appear that the glia cells have passed on into the nerve within the cranium. Dr. Payne read the bibliography of similar cases. The prognosis is a question, and Dr. Payne gave the literature of the pathology of similar tumors, and from the contradictory statements, gathered that gliomata of the retina are essentially malignant, often accompanied by metastases of their cells or toxins through the blood current, as well as along the nerve. Also, that primary glioma of other parts of the body, such as the cord and brain, are benign, in that they do not become metastatic, and have no

cells or toxins to be conveyed. Hence one would be lead to believe that this case, being one of primary glioma of the optic nerve, is benign, and offers a good prognosis. If it were of the retina, though it might not be called a sarcoma, it would resemble one in all the essentials of malignancy and metastatic developments.

Discussion. Dr. V. H. Hulen said the specimen was the finest he had ever seen. He had seen the case before operation. In his opinion the prognosis is bad, and would be fatal in some years. He would like to know how the specimen was mounted.

Dr. L. C. Deane said that Dr. Payne had forgotten to mention that while reaching back to divide the nerve, it had parted; hence he believed that the tumor extended into the cranial cavity.

Dr. R. D. Cohn said that there is no such histological tissue in the nerve as shown in the specimen, and therefore Dr. Payne is probably correct, as the tumor having originated in the nerve may not be malignant.

Dr. Hulen believed the prognosis bad because, from the descriptions of Dr. Deane and Dr. Payne, the growth extended into the cranial cavity.

Dr. Payne in closing the discussion said that as we have seen but few cases it is better to take the experience of those who have. According to the classification of pathologists this tumor is benign.

Dr. Pischl exhibited a Sarcoma of the Choroid.

NEWS ITEMS

*Personals and items of interest should be sent to
Dr. Frank Allport, 92 State St., Chicago.*

Dr. Geo. de Schweinitz has gone to Europe.

German Ophthalmological Society.—This society will meet at Heidelberg, Sept. 13-15.

Dr. George M. Gould, editor of the Philadelphia Medical Journal, started for Europe, July 18.

Dr. W. T. Montgomery, of Chicago, has just returned to the city after a six months' trip abroad.

Among those who sailed on the Potsdam, July 7, were Drs. E. T. Dickerman and W. H. Wilder, of Chicago.

Dr. Hiram Woods of Philadelphia has been appointed one of the directors of the Medical Journal of Baltimore.

Physicians are well paid in Brazil, but their life is a hard one, as they often have to ride all day to reach a patient.

At the last meeting of the Minnesota State Medical Society, Dr. Thos. McDavitt, of St. Paul, was elected Secretary.

At a meeting of the California Northern District Medical Society, Dr. Wm. Ellery Briggs of Sacramento was elected President.

Abadie believes that in chronic simple glaucoma where miotics fail to relieve, sympathectomy and not iridectomy should be performed.

General Sternberg says 100 additional medical officers, graduates of reputable colleges, are needed for duty in the Philippines and China.

The public baths of Philadelphia have been well patronized lately. During one week 416,220 persons availed themselves of the opportunity thus afforded.

Reaumur thermometers are no longer to be officially tested in Germany as heretofore. The Centigrade is henceforth the only standard thermometer for the Empire.

Medical Promenades at the Exposition, to point out and describe article of special interest to visiting physicians, have been organized by Drs. Helm and Harcel Baudouin.

At a meeting of the Boston Physical Educational Society, held March 8th, Dr. Myles Standish gave an interesting talk on the subject of "Eyesight of School Children."

De Speville recommends subcutaneous injections of cacodylate of sodium for anemic amblyopia. He gives five centigrammes for fifteen days, then rests eight days and resumes.

It is said that the Chinese greatly fear the Christian Missionaries because they have an idea that the missionaries are anxious to secure babies' eyes to present as an offering to their God.

The new staff of St. Vincent's Infirmary of Indianapolis has been appointed. The eye and ear portion of the staff is as follows: J. L. Thompson, F. A. Morrison, D. A. Thompson and J. J. Kyle.

According to Dr. Plant (*Klinische Monatsbl, fur Augenheilk.*, Jan., 1900), it is unsafe to keep iced bags on contact with the lids for hours at a time, owing to the danger of freezing and consequent gangrene.

"Archives de Medecine et de Chirurgie Speciales" is the name of a new monthly journal of Paris, established and edited by Dr. Suarez de Mendoza.. It is a sort of review of reviews of the specialties in medicine.

Out of the 351 school children whose eyes were examined by Dr. Walter Pyle, of Jersey City Heights, only sixty-nine had perfect eye-

sight, while in seventy-one cases the eyes were in danger of becoming permanently affected.

The number of blind children in Chicago, as found in the school census statistics, is 297; 160 boys and 137 girls. The needs of these children will be met by one school on each side of the city. These schools will be opened in September.

The Faith-Cure Fad.—It is stated in the Medical Sentinel that there are twice as many persons studying in the so-called schools of mental healing, faith cure, Christian science, and the like, than in all the medical schools in the country combined.

June 28th, and upon two following days, a very successful carnival was held at the Zoological Garden at Clifton, Eng., for the benefit of the Bristol Eye Hospital. The exercises were opened by the Dowager Duchess of Beaufort. The entertainment paid very well financially.

A new German hospital building will soon be erected at the corner of Lexington Avenue and Seventy-seventh Street, New York City. The cost of the new building, and of alterations to the building adjoining this site, and now used as the woman's ward of the hospital, will be \$150,000.

All surgeons, assistant surgeons, acting assistant surgeons or contract surgeons, and hospital stewards, who served in the army or navy of the late Confederate States, are requested to send their post-office addresses to Deering J. Roberts, M. D., Secretary Surgeons' Association, C. S. A., Nashville, Tenn.

The Medical Club of Paris offers temporary membership to visiting physicians at its handsome quarters, 5 Avenue de l'Opera, with all the privileges of club life, large dining halls and dinner at 7 p. m., with concerts and dramatic entertainments from time to time. The fee for temporary membership is ten francs, or \$2.

Sanitary Telephoning.—Telephone booths in Vienna are furnished with napkins, and those who telephone are requested to wipe the

mouthpiece of the transmitter. If the napkins are changed often enough and the telephone users are careful to observe the instructions, the mouthpiece should be kept in fair sanitary condition.

Scholarships of the American Medical Association.—In accordance with the recommendation of Dr. Keen in his presidential address, the trustees of the American Association have established a fund of \$500 to be expended annually for the encouragement of scientific research, but no sum given to any individual shall exceed \$100 at a time.

The testimony of the laity and some physicians as to the value of certain drugs, such as cineraria for cataract, induced Gaove in the Buffalo Medical Journal to give it a trial. He has found it absolutely worthless. He does not have faith in any medical treatment of cataract. Massage may do harm as well as good, and the claims of galvanization have likewise no reliable foundation.

An article which will very well repay reading is published in the London Lancet for July 7th, 1900. It is by R. Marcus Gunn, Ophthalmic Surgeon at Moorefields' Eye Hospital, and is upon "The Present State of our Knowledge Regarding Visual Sensations." It is the Bowman lecture for the year, and was delivered at the Ophthalmological Society for the United Kingdom, June 5th, 1900.

The editor of this department has very recently had, through the courtesy of Dr. A. Alt, of St. Louis, an opportunity of examining more than a hundred micro-photographs of eyelid sections of both upper and lower eyelids prepared by Dr. Alt. These reveal the fact that our knowledge of the histology of the eyelids is very incomplete—that there are numerous glands and more than one kind hitherto undescribed and unknown. Alt has made over a thousand sections of the eyelids, and will probably publish a monograph, which must be a surprise to ophthalmologists, both histologically and clinically.—Annals of Ophthalmology.

Profound and Lasting Analgesia of the Eye with Dionin. A. Darier. In Darier's experience with iritis, keratitis, arthritic ulcers, iridocyclitis and episcleritis, accompanied with much pain, the applica-

tion of ethylmorphin hydrochlorate or dionin, relieved and banished the pain in a few moments. A rapid improvement of the lesions was also noted in most cases. He found it very effective in a case of glaucoma, relieving the pain and improving vision from 1-16 to 1-4 in thirty minutes. He instills a 5 per cent solution, two or three drops every few minutes until chemosis occurs. It smarts at first and then all pain is relieved. The result was negative in only one case in his experience, and in this no chemosis occurred; the patient was evidently refractory. The action of the dionin is strictly local.

Dr. Samuel J. Jones, the ophthalmologist of Chicago, is evidently thoroughly in earnest concerning the anti-noise crusade, which he is leading in that city. He and other members of the crusade movement are indignant at the ridicule that the city officials have made of them. They say they are no cranks and that they do not wish to restrict personal liberty. In a statement regarding the work, Dr. Jones says:

"We are not cranks and the noises which we seek to quiet are those which bother residents in all parts of Chicago. It is an injustice to the commission and to the citizens interested in the movement to intimate that we seek to stop music in private houses between the hours of 8 o'clock in the evening and 8 o'clock in the morning. What we aim to do under the new ordinance is to put a stop to the ear-splitting music of itinerant organ grinders and amateur brass bands who practice their art during the early morning hours in the residence districts.

The proposed ordinance makes no reference to the laughter of children, as has been intimated by certain city officials who are not acquainted with the recommendations presented to the anti-noise commission. It is sought to moderate somewhat the noisy antics of unruly children who make the day and the night hideous by their pastimes in the streets. We all realize that the laughter of children and their youthful pranks are among the beauties of nature, but a dozen shouting boys, armed with tin cans, miniature patrol wagons and fish horns can hardly be classed as among the beauties of nature. I believe in granting a license to newsboys without fee, and whenever they overstep the bounds in the matter of creating undue noises during the early morning or evening hours I believe in having their license revoked."

"With regard to lawn mowers, it is our purpose to put a stop to the crank who insists upon leaving his bed at daylight in order to mow the grass on his lawn. At that early hour only those who have experienced the sensation can appreciate the annoyance fully. Should the ordinance go into effect it would not in any way interfere with the operations of the park employes in the performance of their duties. In the park districts the residences are not close enough to be disturbed by the cutting of grass. The provision against lawn mowers in the new ordinance refers only to the owners of residences in thickly populated districts."

Row after row of sightless eyes turned expectantly in the direction of a man who stood with a bag of gold in his hand, was the unique spectacle that presented itself at the dock of the department of charities, Twenty-sixth Street and East River, in New York, recently.

Six hundred of the blind poor of the city, old and young, comely and crippled, had gathered there to receive each \$50 in gold at the hands of Superintendent Blair of the outdoor poor department, according to the terms of the recent appropriation of the sum of \$75,000 to that use in Greater New York. Of that \$75,000, \$30,000 was the share of the boroughs of Manhattan and the Bronx.

The officials were asked what difference it made whether the blind poor were paid off in gold or in any other kind of money. Superintendent Blair said that most of the beneficiaries could tell by the touch. Several of these present were tested and most of them told instantly on feeling of the coin the kind of metal and denomination.

Numerous interesting cases came to light. Benjamin Scully, the champion chess and card player, sat on one of the benches with his wife and father-in-law, both of whom were blind. Another interesting applicant was "Kid" McEvans, 29 years old, who is known as the "Marvel" from the number of musical instruments he is able to play. Kitty Schlasser, a pretty young woman, who is an accomplished linguist and pianist, sat with the others.

The address which Dr. G. E. de Schweinitz delivered before the Medical and Chirurgical Faculty of Maryland, in Baltimore, last April, has appeared in the Maryland Medical Journal for June, and will well

repay a careful perusal. The title has already been mentioned in these columns. It is: "Certain Changes in the Vessels and Vascular Coats of the Eye, Which Are of Diagnostic and Prognostic Value in General Disease."

The address is written in this distinguished author's characteristic, plain and graceful style. At the end he summarizes the address as follows:

(1) Flitting conjunctivo-episcleral congestions may be the only symptom of masked gout.

(2) Such congestions may be the prodromes of later gouty manifestations in the eye or elsewhere in the body, but also (and most importantly), may be the forerunners, associates or alternates of retinal-vessel changes, which, in their turn, are the indications of general arterio-sclerosis of serious prognostic import.

(3) The same conclusion applies to recurring subconjunctival and recurring subcutaneous palpebral hemorrhages, which seem, however, to be related especially to the chronic form of nephritis, exactly as is the classical retinitis.

(4) Inflammation, hemorrhage and edema, with exudation, are not necessarily the ophthalmoscopic signs of general arterial disease or of its special localization in certain organs, for example, the kidney. It may be manifested with perhaps equal frequency by alterations in the walls of the retinal arteries and changes in the course and caliber of the veins, together with signs of mechanical pressure where veins and arteries cross.

(5) These retinal-vessel changes may be present when ordinary physical examination does not reveal the signs of endarterial changes in the surface vessels of the body generally.

Inefficiency of Board of Trade Tests for the Detection of Color-Blindness. F. W. Edridge-Green. Holmgren's method of testing for color-blindness is again considered by Edridge-Green, who says that persons with normal sight may be rejected by it, and he criticizes especially the directions by Holmgren that we should ignore color names. A color-blind person names colors in accordance with his color perception and he emphatically denies that the name is guessed, as is

often stated. A person with central scotoma will escape detection by the Holmgren test, and the red end of the spectrum may be considerably shortened without causing a failure by it. He describes his own methods, which he calls the "classification test" and the "lantern test," both of which are described in detail in his work on color-blindness. —The Lancet, May 26th.

News has been received in Milwaukee that Dr. W. A. Fricke, former Insurance Commissioner of Wisconsin, is threatened with total blindness. Dr. Fricke is in New York, where he went after his term of office here expired, to take charge of the New York business of a Cincinnati life insurance company. It is said that Dr. Fricke still continues work, but as soon as he leaves his office he has to retire to a darkened room. His physicians give no hope of improving and say that in time he will become totally blind.

Optics and the War. The war must have made a tremendous difference to the optical trade. Everybody seems to be busy. As yet we have not had much optical war literature, although optics play a very important part in modern warfare. I was reading a new war book the other day by a Mr. Gluckstein, who has managed to perpetrate some extraordinary bulls. One can not expect a perfect knowledge of physiology from a lay-writer, but this gentleman has evidently got out of his depth when he says "the cataract before our eyes is removed." One writer commenting on this said that it reminded him of the novelist who wrote of the heroine, that she kissed him on the forehead and that he kissed her back.—The Dioptric Review.

Does the Wearing of Earrings Improve the Sight? This is a question I very frequently get from my clients. It is a popular superstition that is dying hard. Once upon a time every third child that came to me had already had its ears pierced. I always drew the line at ear-piercing; I consider that any operations on the human frame should be undertaken by a surgeon; and yet I know that not 500 yards from me there resides a jeweller who not only pierces youthful ears as a daily practice, but has the unqualified support as a surgeon's optician of the oculist in my district. Strange inconsistency! But that is another story. I have had it suggested to me that the piercing of ears sets up a counter-pain and irritation, so that slight blepharitis may be relieved. I strongly doubt it.—The Dioptric Review.

The Wane of the Monocle. Somebody—some venerable bard or other—says: "Assume an eyeglass, though you need it not." I do believe that this saying is responsible for the hard dying of the monocle, for if not dead, it is nearly so. I have always fought hard against it, as I never could see where the advantage came in of wearing one, even if one were "cockeyed," or, to express it more scientifically, "an anisometre." Occasionally some old military man may be seen with one, but I verily believe that he uses it now, not because he sees any better with it, but because he has created a vacancy, or a groove for it, on that side of his face, and consequently feels that there is something lacking if it is not screwed up in his ocular.

The monocle of Mr. Chamberlain is as integral a part of him as his orchid. Disraeli said to him that he wore his eyeglass like a gentleman. Evidently Lord Beaconsfield had the impression that it was an article of attire, rather than a necessity.

In the old days I used to sell plenty of them, chiefly concave Nos. 00, 0, 1 and so on, but rarely do I get rid of one now except to some stage-struck amateur who wants one for "theatricals, don't you know." I have always thought the use of monocles foolish enough in a man, and was considerably taken aback to meet one day on a seaside pier two young ladies both wearing monocles. It may have had two significancies. Either the ladies meant to show the world at large that they had cast off the shackles of their sex by assuming the masculine attributes and setting at defiance the cynical male, or it may have been that they meant to show to an admiring masculine world that single eyeglasses meant single blessedness, thus reverting to the custom of some savages who adorn the virgins of the tribe with special earrings, etc. And if nose-rings, why not eye-rings? I do not know what the idea was, anyway it looked very silly.

One would think that the facial lobsidedness produced by monocle wearing would be sufficient to dissuade any rational being from their continual employment. According to the Madrid newspaper, "El Imparcial," the monocle may be considered as the chief element in the cause of our primary non-success in the Transvaal war. The question was asked, how it was that the Boer sharpshooters continue picking out the officers in preference to the men, now that the officers do not wear anything to distinguish them, nor even carry different arms? The reply, which is supposed to emanate from a prominent Boer authority, decisively settles the question. To use the exact phraseology;

"Oh, there are always means of distinguishing them. Our picked marksmen, of whom there is always a good number in each commando, use splendid field glasses, whilst on the contrary, what do you think the English officers use? Single eyeglasses! A very elegant ornament on the promenade, or in the club, but somewhat dangerous in this war in South Africa, as sun catches it and makes a magnificent target for the Boer sharpshooters." After this alarming statement, will any British officer who values his safety use a monocle?—The Dioptric Review.

Dalen in the Mitth. a. d. Augenk. d. Carol. Med.-Chir. Instituts zu Stockholm, ii., p. 1. states that holocain $\frac{1}{2}$ per cent. dropped into the conjunctival sac produces in $\frac{1}{2}$ - $1\frac{3}{8}$ minutes complete anaesthesia of the cornea and conjunctiva, which lasts fifteen minutes. The drug has no effect upon the pupil, the accommodation, or the intraocular tension, nor does it produce anaemia. One objection to the use of the drug is its toxic effect, which is five times as great as that of cocaine. Furthermore, it more readily causes opacity of the cornea and loosening of the epithelium. No disturbing influence on the healing of corneal wounds had been observed.

The ownership of the New York Medical Journal has passed from the Publishing House of D. Appleton & Co., to A. R. Elliott, an advertising agent, of New York. Notwithstanding the fact that this journal possesses a subscription list of something over six thousand, and an advertising patronage of upwards of forty pages per week, the expenses of publishing this journal were considerably in excess of the income from all sources; and it was decided to dispose of the property with the result above mentioned.

This fact shows how profitable it is to issue an apparently prosperous medical journal.

In the American Journal of Medical Scientists for July, Dr. Oliver publishes a paper on the "Eye Symptoms of Tabes." He divides tabes into two types, a gross optic type, in which the eye symptoms appear as visual paresthesias and contracted fields, followed later by degenerative symptoms, with apparent intermissions and improvement, but terminating in total blindness; some of the well-known pupillary and extraocular muscular signs becoming manifest in 30 to 50 per cent. of cases. In the other type the eye symptoms seldom

come before the specialist, though, in a great majority of instances, they exist to a certain extent. There is an absence of growths and inflammatory signs in ocular structures and the vision finally largely disappears.

At the Cleveland, Ohio, Medical Society, Dr. A. R. Baker read a paper on the "Use of X-Ray and Electromagnet in Locating and Removing Foreign Bodies from the Vitreous Humor."

Dr. Calhoun has great faith in protargol solutions in the strength of from 1 to 5 per cent for corneal ulcers. He applies it directly to the corneal ulcer, and reports excellent results.

Dr. F. C. Hotz, of Chicago, is also enthusiastic in the use of protargol, and seems to have but little fear of ophthalmic suppurations since he came to know the value of this remedy.

Dr. L. Webster Fox, of Philadelphia, also speaks highly of protargol, but before using it, he thoroughly irrigates the conjunctiva in order to wash away any secretions that may hinder the application directly to the conjunctival tissues themselves.

At a meeting of the Kentucky State Medical Society held last May, Dr. Blincoe, of Bradstown, read a paper on "Some Facts and Fallacies in Regard to Eye Strain." He stated that this condition is very general. The following conditions are traceable to it: Headache, vertigo, constipation, dyspepsia, "bilious spells," sleeplessness, neuralgia, neurasthenia, cerebral hyperemia, chorea, epilepsy, insanity, anemia, general debility, and obscure nervous troubles.

The many friends and admirers of Prof. Wilhelm Zehender will be pleased to know that although retired from regular work he is still an active participant in many schemes of literary endeavor. We have just received from him a complete index of the *Klinische Monatsblätter für Augenheilkunde* from 1863 to 1899, inclusive, as well as a copy of the second edition (261 pages) of his notes on the World's Congress of Religions, held at Chicago, in September, 1893.

Asepsis in Churches.—The Roman Catholic bishops in Italy are

instructing their clergy to sweep and disinfect the floors of churches with sublimate at least once a week, and after each crowd . . . ce. The receptacles for holy water and other articles are to be frequently cleaned with boiling water or sublimate. The *Semaine Medicale* urges the generalization of these measures as a great benefit to the health of the public if systematically applied.

The centenary meeting of the Royal College of Surgeons, held in London, July 26, was the occasion for the presentation of diplomas of honorary fellowship to a large number of distinguished personages from all parts of the world, including Lord Salisbury, Lord Roseberry, Dr. W. S. Halsted of Baltimore, Rr. W. W. Keen of Philadelphia, Dr. R. E. Weir of New York, Dr. J. C. Warren of Harvard, Dr. I. H. Cameron of Toronto, Sir W. H. Hingston of Montreal and T. G. Roddick of Montreal.

Strontium in Exophthalmic Goitre.

The *Riforma medica* for March 24th gives the following formula:

R Strontium bromide	6 parts.
Strontium iodide	12 parts.
Distilled mint water	20 parts.
Sryup. of mint	20 parts.
Distilled water	40 parts.

M. A coffeespoonful three times a day.

After a courtship extending over twenty years, during the last twelve of which they have exchanged letters regularly three times a week, Carrie M. Anderson of Fort Atkinson, Wis., and John H. Cummings of Janesville, have been married, but without having seen each other—for they are both blind. The nuptial knot was tied by a blind minister, and the maids of honor were also sightless. The bride is a native of Fort Dodge, Idaho, and the groom earns his livelihood as a carpet weaver.

California's Latest Ailment.

In hunting for a name for a strange new malady recently discovered in California, the doctors coined the word "topsyturvyopia." The case baffles explanation. Mary Terry, a 7-year-old daughter of a Portuguese rancher in the southern part of the state, was born with

some defect of the optical structure which causes her to see everything reversed, precisely as mortals with normal vision see things in a mirror.—Philadelphia Record.

Dr. Geo. M. Gould of Philadelphia, has written a very readable little book entitled "Suggestions to Medical Readers." It contains 185 pages, and is sold for \$1.25. It is published by the Philadelphia Medical Publishing Co. It consists largely in the reproduction of papers or editorials that have appeared in the Philadelphia Medical Journal, and carries with it the individuality, and fluent and caustic style of this well known writer.

In the *Meunchener Medicinische Wochenschrift* for June 10th, Michel writes a paper on the "Causes of Primary Iritis," and says that general examination of 84 cases of primary iritis at Wurzburg disclosed chronic nephritis in 34.5 per cent.; tuberculosis in 36.8; affections of the circulatory apparatus in 15.4; syphilis in 5.9; and various other affections in 7.1. The large proportion of chronic nephritis emphasizes the necessity of general examination and appropriate treatment in all cases of "primary iritis" and also of parenchymatous keratitis, which probably has a similar etiology.

In the *New York Medical Journal* for July 7th, appears an interesting article by Dr. Bates on the subject of "Secondary Cataract." Dr. Bates has traced in the rabbit the formation of the connective-tissue membrane which veils the pupils after the removal of the lens, and finds that it is composed of new tissue together with the folded posterior capsule, the opacity being due to the former. The secondary cataract begins with the accumulation of coagulable blood in the anterior chamber at the time of the operation, fibrin appearing from its coagulation, and the connective tissue later replacing it. This process can be prevented in the rabbit by performing a quick operation, closing the scleral and orneal wound with sutures and restoring the anterior chamber with normal salt solution. These facts afford a strong presumption that secondary cataract in man is also due to the same process, and he is carrying on studies to determine this as far as possible.

In the American Journal of Ophthalmology for July, 1900, Dr. Lucien Howe, of Philadelphia, gives a formula for the preservation of a solution of the supra-renal capsule. The methods of preparation are as follows.

One-half dram of the extract is rubbed in distilled water to a paste, the water being added very gradually then, and afterwards until a fluid ounce of the mixture is made. This is placed in a capsule, gently heated over a gas jet at about 160° F. for fifteen to twenty minutes, and whatever amount is lost by evaporation is replaced by sufficient sterilized water to make again a fluid ounce. In that ounce 15 grains of boric acid are then dissolved. The solution is filtered, or only the clear portion used. Further precipitation usually occurs, but this solution will keep at ordinary room temperature, in well-corked bottles, for several weeks without apparent alteration either in its character or in its physiological effect.

Program of Entertainment, International Medical Congress.—Aug. 2, the day on which the Congress opens, a fete will be given in the evening by the president of the council in behalf of the French Government.

Aug. 3.—A fete will be given in the evening by the President of the Congress.

Aug. 5.—Reception for the members of the Congress, by the President of the Republic, at the Palais de l'Elysée.

Aug. 7.—A fete will be given by the Municipal Council of Paris in the Salons of the Hotel de Ville.

Aug. 8.—A fete will be given in the evening in the Palais du Senat and the Jardin du Luxembourg, by the officers and organization committees of the Congress.

Other entertainments have been arranged in the most of the Sections. The wives, daughters and sisters of the members are included in the invitations of these entertainments. A committee of ladies have been formed to receive and entertain the wives, daughters and sisters of members of the Congress.

It is gratifying to be able to see that the State of Connecticut has, through its General Assembly, adopted a bill providing for the testing of the eyesight of pupils in the public schools. We take the liberty

of quoting from the annual address of the President of the Connecticut Medical Society, for 1900, Dr. Chas. S. Rodman, of Waterbury:

The only medical legislation enacted by the last General Assembly was an act providing for the testing of the eyesight of pupils in the public schools. The law (page 56, Proceedings 1899) has gone into effect. No report has yet been made by the State Board of Education, which is charged with its enforcement. Countless instances of its beneficial action can be adduced. On the other hand, there has been in some quarters, criticism, for which there has been a reason. In three rooms of a single school, of 130 pupils tested, ninety-six were reported as defective. They were pupils of the lower grades. Generally, however, discretion has been exercised in the conduct of the examination, and only a reasonable percentage of pupils reported as suffering from eye strain or defective vision.

Doubtless the conclusion will be reached in Connecticut, as in Minneapolis, Baltimore, and elsewhere, where functional examination of the eyes of school children is maintained, namely, that a rigid testing of pupils in the lower grades with the conversational cards used in ophthalmic practice is unprofitable. The meshes in the net should be large enough to allow the little ones to escape until sufficiently advanced to render recognition of their defects an easy task. Reasonably construed, the law will benefit our army of school children and prove the best substitute for the ideal, viz., examination by an expert in ophthalmology. It appears that the discretionary power vested in the State Board of Education is ample, and that additional legislation is unnecessary.

We also present the report of the Sub-Committee on Legislation for the Connecticut Medical Society:

By vote of the Society's Committee on Legislation, the preparation and introduction of a law to provide for the Testing of the Eyesight of Children in the Public Schools were referred to a Sub-Committee. Colonel L. F. Burpee, whose aid was at once sought, in accordance with the action taken by the Society in 1898 and the suggestion of Secretary Hine, of the State Board of Education, drafted a bill which has since been enacted by the General Assembly. On March 1st a hearing was held before the Committee on Public Health and Safety; there appeared and spoke in favor, Colonel Burpee, Drs. Storrs, Stearns and Osborne, School Superintendents Kendall and Tinker,

Judge Cowell and the members of the Sub-Committee, Drs. Rodman, Goodwin and Wordin. While many cities and health boards have instituted examination of the eyesight of children, we believe that Connecticut is the first State to enact such a law for this purpose, and we congratulate the Society upon this result. We are under especial obligation to Colonel Burpee, who has given his services to the Society, drafting the bill, going to Hartford with the Chairman to confer with Secretary Hine, courteously introducing those who appeared at the hearing and in every possible way advocating the passage of the bill. The text of the statute is herewith subjoined.

C. S. RODMAN.

R. S. GOODWIN.

N. E. WORDIN.

A very interesting meeting of the Associated Health Authorities and Sanitarians of Pennsylvania was held at Mechanicsburg, May 28th. School hygiene was discussed from its various aspects, and Prof. J. A. Beitzel, amongst other things, took into consideration the ocular hygiene of schools. The following is given as an abstract of what he had to say on this important subject, and it is certainly gratifying to learn that educators are becoming scientifically informed upon such matters:

"Proper lighting of the school-room is necessary, or the eyes will be injured, and here we need the sanitary expert and the architect. All teachers know the depressing effect of cloudy, sunless days, and a dull, dark room. The direction in which the light enters the room is of supreme importance; when full in the face, it is fatal to eyesight; while light from behind throws the shadow of the body on the book, and from both sides throws a double set of shadows, but from the left and from overhead windows, it falls directly on the desk. Some claim that from each desk there should be visible a strip of sky at least 30 c.m. wide, measured from the top of the window. It has been observed that there is a progressive tendency to myopia in school children, due to the nature of their work and the defective illumination, and that nearsightedness increases from the lower to the higher grades. The inference, from a number of observations, is that the children of those nationalities most commonly engaged in study and eye work have the greater proportion of myopic change, while those accustomed to outdoor life and resting their eyes largely on remote objects are generally

free from this affection. Better lighted buildings show a less prevalence of myopia, and observation shows that the ration of children with defective vision is progressive, indicating that eye-strain is due to too much or excessive light, glaring and conflicting lights, that from one direction, too long use of the eyes without change of focus on different objects, too small type in print, reading from the black-board at too great a distance, and bad position of the body assumed in the execution of the slant system of penmanship, causing spinal curvature as well as defective vision. Other phases of school hygiene of importance are improper seating, overcrowding, overwork, lack of exercise, too long sessions, nervous disorders, epidemics, and infection from books."

Miss Dora Keene, of Philadelphia, had something to say on the medical inspection of schools. Amongst other things she believes that daily inspection of every school should be made, as many pupils are found suffering with nose, throat or ear affections, sore eyes and defective vision. Miss Keene is Secretary of the Public Education Association. She also is a member of the Board of Education of Philadelphia. She is a daughter of Prof. W. W. Keene, and a college graduate. She is alive to all topics of this character, and it can be safely said that her presence upon the Board of Education in Philadelphia has been of the very greatest benefit in all matters pertaining to the health of the pupils. She has always worked in harmony with all beneficial and commendable works of the medical profession, leading in the direction of the physical development of children.

Although the mayor of Philadelphia had issued strict injunctions against the useless firing of toy pistols and other devices for making a noise during the celebration of the Fourth of July, that event has again been attended with several hundred injuries. As usual, lacerated wounds of the hands and face, injuries to the eye, and burns of the face and hands were most frequent. One colored boy fired into a collection of torpedoes, causing a wreck of the store and the death of eight people. The city is making an inquiry into this accident, as the storing of such explosives is forbidden by law. Friends of the Italian who owned the store at which the explosion occurred are said to have threatened death to any one who would report the facts in the case.

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VOLUME IX.

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No. 9. NEW SERIES

ORIGINAL ARTICLES.

THE PRENATAL DEGENERACY OF THE EYE.

By Lee Wallace Dean, M. S., M. D.,

Professor of Physiology, University of Iowa, Ophthalmic Surgeon to the Iowa College for
the Blind, Assistant Ophthalmic Surgeon to the University Hospital.

ILLUSTRATED.

For many years physicians and psychologists have been looking for the cause of hereditary degenerate changes. That there is such a thing as hereditary generate change no one can at the present time doubt. It has become so well established as the result of hundreds of observations of degenerate families that a degenerate condition can be transmitted from parent to child that it is even awakening the interest of the laity. A 1 (1 McKin Pg. 12) striking indication of the spreading uneasiness is given in a bill recently intro-

duced into the Ohio legislature where it was proposed that all candidates for marital union should be required to undergo examination and marriage be forbidden to such persons as shall be believed through actual condition or hereditary tendencies to be unfit for the function of parentage. This provision had in view, more the prevention of crimes, than of physical defects.

We know, however, that criminal tendencies, even excessive poverty are degenerate conditions and that they all go hand in hand with insanity, cleft palate, albinism, polydactylism, colobomata, retinitis pigmentosa, etc. The same condition is not transmitted in families but we find various degenerate stigmata in different members of the same family and frequently several in one individual. For instance in one family reported by Kiernan 2 (2 Medicine, Sept., 1897,) we find in five generations, two cases of club foot, two of cleft palate, one of strabismus, one of migraine, two ataxic children, two imbeciles, one nympho-maniac with a double uterus, one prostitute, four cases of triplets, all born dead, one case of quadruplets, two deaf mutes, one cyclops, twins paralyzed in infancy, a sarcomatous son, two lunatics, two epileptics, one case of color blindness, a deformed uvula and a cleft palate.

Insanity, epilepsy, moral degeneracy, are manifestly due to some malformation or malnutrition of the central nervous system. Marchand, in the brains of two idiots of European descent found the convolutions fewer in number, less complex and deep, smoother and broader. The functions of the sulci are to increase the number of cortical cells brought in intimate contact with the nutritive medium. The smoother and less deep the convolutions the smaller the number of cells so exposed. Other cases, however, have been recorded where the sulci were more numerous and more deep in idiots than in persons of intelligence. Here, however, there may have been a sclerosis of the vessel walls in the brain or a disturbance of the lymphatic system which resulted in non-nutrition. Talbot 3 (3 Degeneracy, Pg. 17) says, the human brain in the course of its development passes through the same stages as other vertebrate brains, and to some extent these transitional stages resemble permanent forms of the brain. When the brain stops short of its characteristic development it is natural that it should manifest only its most primitive functions. In the brain, or rather in the central nervous system, are groups of cells which

have a trophic function, that is, they govern the growth and nutrition of the muscles and other parts of the body. When these are not properly developed there is a lack of development in the part governed. If during the development of the eyes its trophic centre be disturbed we get a malformation of the eye just as we get a cleft palate when its trophic center is interfered with.

During the development of the eye it passes just as the brain does, through stages which resemble and correspond to the eyes of lower animals. If, owing to an affection of its governing center, its development is interfered with or stopped we find eyes corresponding more or less to those of the lower animals, as in cases of persistent hyaloid, colobomata, microphthalmia, etc.

The degenerated human brain never resembles exactly the brain of any lower animal, and neither does the undeveloped eye.

The purely physical degenerate stigmata, as well as the psychological, as cleft palate, irregular teeth, deformed and misplaced ears, etc., are due to disturbances of the central nervous system. Talbot 4 (4 Degeneracy, Pg. 123) says, "The nerve centers controlling nutrition, growth, repair, secretion and excretion are often as deeply affected as those checks constituting morality." Small lower jaws, twisted noses, club foot, are due to some disturbance of the trophic centers which govern their growth and nutrition. Cleft palate is a non-union of parts, the result of trophic disturbance. At a very early period of fetal life a series of clefts appear in either side of the cephalic extremity. These usually coalesce about the ninth or tenth week or intrauterine life, but as a result of a disturbance of the trophic center occasionally this coalescence fails, or is incomplete. This leads to a series of deformities, the chief of which is cleft palate and hare lip.

The lower jaw, up to the fifth month of fetal life is retreating. If at this period the trophic center is affected it may remain very small, and we get what the dental surgeon calls a retrusive jaw.

With the exception of the brain, we find the largest variety of degenerate stigmata in the eye. The reason for this is that the eye is really a specialized portion of the brain, and is consequently subjected to the same influences in the embryo.

In the amphioxus one of the leptocardii the eye consists simply of a pigmentary screen lining the anterior portion of the central ner-

vous system. This screen is the pigmented choroidal epithelium. It is not even elevated upon a stalk but lies simply upon the surface of the brain. The amphioxus does not need the ordinary structures of the eye because the tissue covering the nervous system is transparent and rays of light can penetrate to it.

By examining different animals an almost perfect series can be secured showing the various steps in the development of the perfect eye. As we go from the lower to the higher we find the pigmented screen is first slightly elevated from the surface of the brain, then it is placed on a stalk, and finally we find the perfect eye where the stalk has been absorbed and the eye is separate from the central nervous system.

If we watch the development of the chick we find the medullary groove showing three well marked dilatations. The anterior dilatation is concerned in the production of the retina, the eyeball, and the third ventricle of the brain. The second and third are concerned in the production of the other portions of the central nervous system.

On the sides of the first dilatation two small projections, one on each side, called the primary optic vesicles, are formed. These vesicles become constricted at their base and we have a stalk connecting the vesicle with the brain. From this vesicle we have developed the retina, pigmented epithelium of the choroid and part of the iris.

The retinal wall of the vesicle undoubtedly represents a portion of the primitive brain wall or cerebral cortex. The retina in its development undergoes a process similar to that of the brain. It is early differentiated into two zones, an inner non-cellular and an outer cellular nucleated zone. The non-nucleated inner layer corresponds to non-nucleated stratum on the inner side of the spinal cord. The thick outer layer is homologous with the internal ganglionic stratum of the developing wall of the spinal cord.

When we study the changes in the retina, choroid or iris of the eye, we are studying really the changes in a portion of the brain. Not only do we have a portion of the brain here placed superficially, but we have the blood vessels and nerve fibres so placed that any change in them can be readily studied. In no other portion of the body do we have vessels so situated behind transparent media so that the slightest change in the vessel wall or the flow of blood can be

detected by the eye. Here the nerve is so exposed to view that any defect in it can be readily seen. The pigment, too, is so placed that its arrangement, its increase, or decrease, can be carefully studied. In short, we have here a modified portion of the brain with its vessels exposed in the best way possible for study.

In studying the degenerate conditions of the brain one can form no opinion of the brain itself before death. In the eye, however, the macroscopic changes can be best observed during life and after death additional information can be secured by microscopical sections.

During the last year I have found a number of interesting cases of the degeneracy of the eye in my private practice and at the Iowa College for the Blind. I will describe the cases and later discuss their bearing on this subject.

Case No. I. Arthur C., Male. Age 11 years. Mother healthy, has no trouble with her eyes. Father healthy; is an idiot, not intelligent enough to give any information. He can see during the day large objects, but as soon as it becomes dusk he becomes blind. He has one brother and one sister (See Case No. II. and III.). He complains of hemeralopia. He is exceedingly dull and a poor pupil. The teeth show signs of degeneracy. The upper incisors are normal, below there are and never have been more than three incisors. These are wedge shaped, being narrow below and broad above. The absence of the one incisor shows a lack of development of the germ due either to heredity or defective maternal nutrition at the time of conception or during early pregnancy. 5. (5 Talbot, Degeneracy, Pg. 238.) Examination of the eyes revealed $V = \frac{5}{6}$. Fundus showed the characteristic changes of retinitis pigmentosa. Diagnosis, Retinitis Pigmentosa.

Case No. II. Loman C., Male, age 9. Brother of Arthur. Is exceedingly bright. His teeth are normal with the exception of some changes due to mouth breathing. He has adenoids. Examination of eyes reveals $V = \frac{5}{6}$. Fundus similar to Case No. I. Diagnosis, Retinitis Pigmentosa.

Case No. III. Ollie C., Female, age 6. Sister to Cases Nos. I. and II. Also complains of hemeralopia. Is very stupid. She is inclined to spend her time in dreaming. Has adenoids. Her teeth show well marked degenerate changes. There are no upper incisors. The

first ones have been out for eighteen months. There are as yet no signs of second dentition above. The lower incisors are very irregular. From right to left we find the first further forward than the others, the second back a little, the third further forward than the second, but not so far as the first, and the fourth is placed far behind the others. Examination of the eyes reveals $V = \frac{6}{10}$. Fundus similar to Cases I. and II. Diagnosis, Retinitis Pigmentosa.

Case No. IV. Otto A., Male, age 8 years. There could be elicited no history of eye trouble in any other member of the family. On inquiring as to whether he had any brothers or sisters with six fingers or six toes, he replied: "Yes, I have a brother with six fingers, but what has that to do with my eyes?" A complete family history could not be obtained. The patient was very bright and had, outside of his eyes, apparently no degenerate stigmata. The examination of his eyes revealed $V = \frac{6}{9}$. The fundus showed the characteristic appearance of retinitis pigmentosa. Diagnosis, Retinitis Pigmentosa.

Case No. V. Leslie H., Male, age 17. Parents, grandparents, uncles and aunts had no serious eye trouble or degenerate stigmata. Parents are bright, well to do people. Has three sisters, Bessie, age 15, who is partially blind; Effie, age 9, whose vision is good; and Grace, age 4, who is blind. Here are four brothers and sisters, three of whom are partially or totally blind. He has three cousins, one boy and two girls, all in same family. Of these, Louis H., age 16 (Case No. VII.), is almost blind; Oran H., age 10, cannot count fingers and the girl, aged 13, seems to have unimpaired vision. The trouble in each case was retinitis pigmentosa. The fathers of the two families were brothers and the mothers were sisters, and the fathers were cousins of the mothers. As the result of these two marriages we have in one family four children, three of whom are practically blind, and in the other three, two of whom are partially blind. The examination of the patient, Leslie's, eyes revealed $V =$ fingers in one meter. The fundi showed the characteristic changes of retinitis pigmentosa. Diagnosis, Retinitis Pigmentosa.

Case No. VI. Bessie H., Female, age 15 years. Is a sister of Case No. V. She is bright and shows no degenerate stigmata outside of her eyes. Examination of her eyes reveals $V =$ cannot count fingers. Fundi similar to Case No. V. Diagnosis, Retinitis Pigmentosa.

Case No. VII. Louis H., Male, age 16 years, cousin of Case Nos. V. and VI., has a sister aged 13, said to have normal vision, and a brother Oran (Case No VIII.) with poor vision. Here we have the oldest and youngest with poor vision, while the middle child is not affected. The sister was not examined by myself; she may have a retinitis pigmentosa with partial loss of vision. Examination of eyes revealed $V =$ cannot count fingers. Fundus similar to Cases Nos. V. and VI. Diagnosis, Retinitis Pigmentosa.

Case No. VIII. Oran H., Male, age 10 years. Brother of Case No. VII. Teeth show degenerate changes. The two central upper incisors are absent. The two outer are small and conical. Of the lower incisors the two central are about one-third normal size; the two outer ones about one-fourth normal size. The examination of the eyes revealed $V =$; cannot count fingers. Fundi similar to Case VII. Diagnosis, Retinitis Pigmentosa.

Case No. IX. Elmer G., Male, age 13. Has a grandfather on his mother's side who has been blind since thirty-five years of age. He complained of hemeralopia before he became totally blind. His mother, now thirty-five years of age, has retinitis pigmentosa complicated with cataract. He has one brother, younger than himself, whose eyes are apparently all right. The boy himself has no degenerate stigmata. Examination of his eyes revealed $V = \frac{6}{1\frac{1}{2}}$. Fundi showed the characteristic changes of retinitis pigmentosa. Diagnosis, Retinitis Pigmentosa.

Case X. Charlie O., Male, age 12. Family history obscure. Father is almost blind. Mother's sight is good. No history of abortion or other signs of syphilis in the family. Has four brothers living, none dead. Of the four brothers two are blind. The boy himself seems to be perfectly healthy. Examination of his eyes revealed $\odot V = \frac{6}{8}$. The optic nerve is whitened; no constriction of blood vessels or macular changes. Diagnosis, Hereditary atrophy of optic nerve.

Case XI. Carrie C., Female, age 14. Father and mother have brown hair. There is no history of malformation or other degenerate stigmata in the family. The girl is very stout, but weak; she is not bright. Her hair is white; iris is a light blue. Examination of eyes revealed Nystagmus $V = \frac{6}{24}$. Fundi almost without pigment. Diagnosis, albinism.

Case XII. (7, 7 The history of this family was furnished by Rev. Mr. Cady.) This is not a single case, but a report of a family of six children. The father, Mr. V—, and mother were both dark complected. They were first cousins. They had but six children. Of these two were dark complected and had good vision. The other four were albinos and had a vision of $V=\frac{6}{12}$ or less.

Case XIII. Robert K., Male, age 8 years. Father and mother's vision good. Has two brothers, one of whom was born blind. The patient's teeth show the only signs of degeneracy outside of the eyes. The two central upper incisors are broad and large; the other two are small and conical. Examination of the eyes reveals V = perception of light. Eyes small. Diagnosis, Microphthalmus.

Case XIV. Lillie L. (Plate I.), Female, age 14. Patient's people are exceedingly poor and so ignorant as to make it impossible to get any reliable family history. There are four sisters and three brothers, all poor and ignorant. The patient is idiotic. She has a retreating forehead, an exceedingly crooked nose, a very long neck, and an exceedingly small retrusive jaw, the lower incisors striking at least one-half inch behind the upper. The teeth are exceedingly irregular. The two left upper incisors are large, the two others very small. Of the lower incisors the two central ones are like mice teeth, pointed and sharp. They are separated at their bases, but come together at their tops at an acute angle. The other two are conical and lie each parallel to its neighbor. Examination of eyes reveals V = fingers in $\frac{1}{2}$ M. Eyes small. Nystagmus. Fundi apparently normal. Diagnosis, Microphthalmus.

Case XV. Ida C. (Plate II.), Female, age 17. Father is deaf. Could obtain no history of degenerate stigmata in mother. Has four sisters living, nine dead. Has four brothers living, and one dead. Had to depend on patient for family history. Patient herself is exceedingly dull. It is impossible for her to learn; she has angular jaws, that is, at the junction of the premaxillary and maxillary bones there is a well marked angle. Her teeth are conical. The incisors are sharp and pointed; are like mice teeth. The ears are small and placed high up on the head; she is almost a typical degenerate, both physically and mentally. Examination of the eyes reveals V = cannot count fingers, but sees large objects.



FIG. 1.



FIG. 2.



FIG. 3.

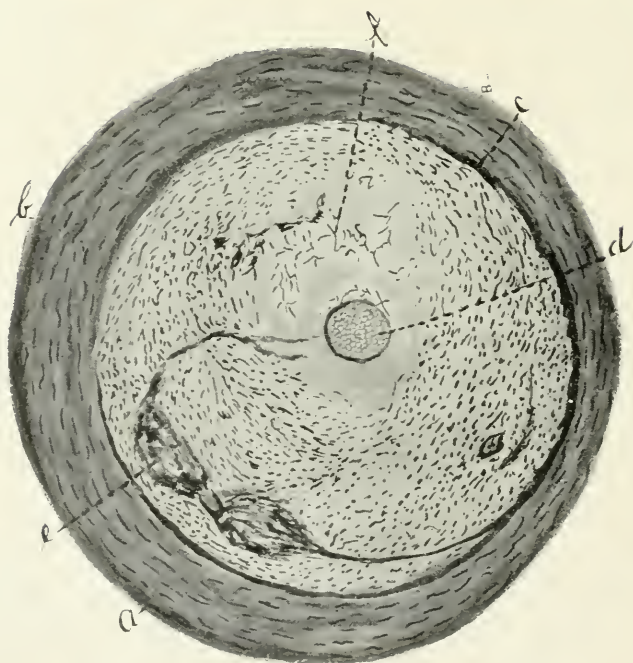


FIG. 4.



FIG. 5.



FIG. 6.

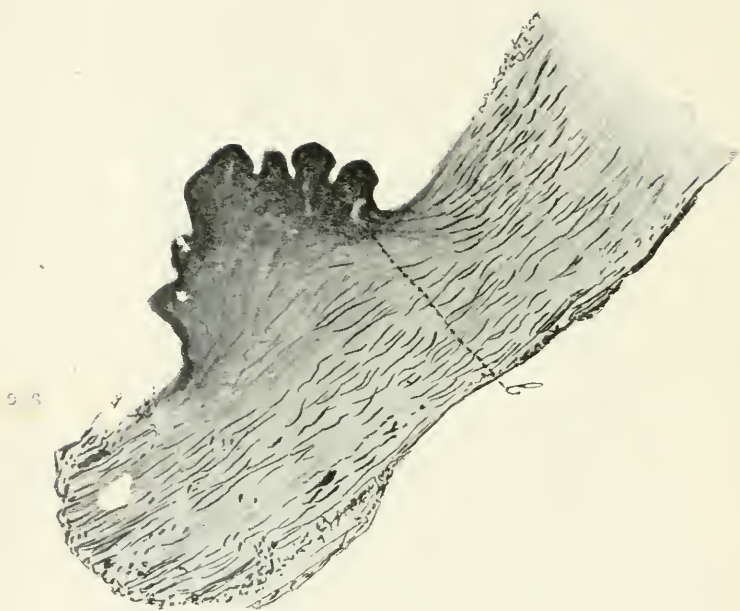


FIG. 7.

Case No. XVI. Miss M., Female, age 16. Family history obscure. She is the youngest of ten children, all of whom are living. Her mother was forty-four years old when she was born. Patient's teeth are imperfect. She has but three upper incisors; one root germ not having developed. An examination of eyes revealed V = fingers in 2 M. Right eye one-fifth normal size. Her eyes are so small that she has to hold her lids open with her fingers in order to see. On the right side there is a congenital absence of the iris. Left eye is one-fifth normal size, the cornea is elliptical, being 3 mm. wide in a horizontal direction and 2 mm. in a vertical direction. On this side there is a large coloboma of the iris, one-half of the lower portion being absent. Diagnosis O. D.—Microphthalmus with Aniridia. O. S. Microphthalmus with Coloboma of Iris.

Case XVII. Harvey A., Male, age 22. Mother's history negative. Father was born deaf. Two of his aunts on his father's side were also born deaf. A third aunt was idiotic. Has two brothers, one eighteen years of age, was born blind; the other, aged 8 years, sees very poorly. There is no sign or history of syphilis in the family. Examination of the eyes reveals V = perception of light. Both eyes are about one-fourth normal size. Diagnosis, Microphthalmus.

Case XVIII. Coylie L., Male, age 17. (Plate III.) Parents perfectly healthy. None of his ancestors have shown any signs of degeneracy so far as could be learned. His father and mother were first cousins. He has one brother and two sisters. One of the sisters is an idiot. She has microphthalmus, misplaced ears and other signs of facial degeneracy. The patient is exceedingly simple minded. His ears are large and placed at right angles to the head. The helix is deformed. His face is covered with a growth of silky hair. The lower jaw is exceedingly small. The lower incisor teeth are three-quarters of an inch behind the upper ones. He has no adenoids, but always keeps his mouth open. Examination of the eyes reveals on right side a microphthalmic eye with a coloboma of the iris and choroid. V = fingers in one M. On the left side there is an apparent absence of the eye. There are small lids and a socket. No eye could be felt on introducing the finder in between the lids and probing about in the orbit. The lower portion of the socket was deformed. The union between the malar and superior maxillary bone has never taken place. There was a space one-fourth of an inch wide between the

two bones. The patient was given an anaesthetic and a dissection of the contents of the orbit was made. The fissure between the malar and superior maxillary bone was found to extend back to the sphenomaxillary fissure. In the apex of the orbit, lying closely against the optic foramen was found a rudimentary eye. It was removed. It was about one-third of an inch in diameter. With the naked eye no change indicating the cornea could be detected. The eye was hardened in formaldehyde and alcohol and stained with haematoxylin and eosine. (Plate IV.) The eye was composed of an outer thick fibrous coat—(a). The portion (b), which was opposite the entrance to the optic nerve, not shown in the plate, and which was not covered internally by a layer of pigmented cells, is the cornea. Microscopically it cannot be differentiated from the sclera. The inner surface of the sclera was covered with a layer of pigment cells. The eye was filled with a myxomatous tissue much more solid than the normal vitreous. It contained some blood vessels, one of which (d) was very large. On the left hand side, a large mass of pigment (e) indicates the position of the rudimentary ciliary body. To the right (f) is some mucoid tissue, which may be the rudimentary lens substance which has undergone mucoid degeneration. No trace of retinal elements could be found. The internal structures seem to have all undergone a myxomatous and mucoid degeneration. The lens and retina seem to be obliterated the most. This is just the opposite to what we find in the eyeless fishes where these two structures are acted upon the least. We will mention this more fully later. Diagnosis, O. D., Congenital Microphthalmus with coloboma of choroid and iris. O. S., Congenital anophthalmus or better a high grade microphthalmus.

Case XX. Arthur K., Male, age 20. Father's and his family history is negative. On his mother's side there are a number of neurotics. The patient himself is very bright. Outside his eyes he has no degenerate stigmata. Examination of his eyes reveals O. D. Cor. cylinder 0.50 axis 60 $V = \frac{2}{3}$ O. S. $V =$ perception of light. The left eye is smaller than the right. Spreading over the surface of the cornea, covering the lower and outer third, is a growth composed of epithelial cells (Plate V.). The eye has never been inflamed. This growth has been present for seven or eight years. It probably corresponds to epithelial proliferation which frequently accompanies degenerate changes in other parts of the body. The remainder of the cornea was

clear. The fundus showed no change except in the disc. In it there was a very deep physiological excavation. Its outline was elliptical, the ends being pointed—not rounded.

Case XX. Oliver C. (Plate VI.) Male, age 25. Parents' history negative. He has an aunt said to be crazy. Patient has but one incisor above, never had but two. At birth his eyes were very large, as he grew older they increased in size until at the age of 16 years the right one ruptured. The stump was removed, hardened in formaldehyde and alcohol, sectioned and stained with haematoxylin and eosine. (Plate VII.) The plate represents a section through the sclero corneal junction. The iris had been torn away and atrophied as the eye enlarged. The ciliary body is large and has extended forward so as to cover the canal of Schlemm. There seemed to be an antero synechia of the base of the iris or anterior part of the ciliary body. The left eye was about twice the normal size. The cornea was 20 millimeters from side to side. The iris was torn and atrophied. There were just a few shreds left at its attachment. The refraction of the eye was -7 D—with -20 D in the ophthalmoscope the bottom of the depressed disc could not be seen. V = perception of light. Diagnosis, Congenital Glaucoma.

Case XXI. Mollie B., Female, age 16. Father committed suicide. Mother died at age of 30, from tuberculosis. Patient is weak-minded. Has adenoids, examination of eyes reveals strabismus divergens, right eye turning out. There is congenital ptosis, due to absence of Müller's muscle, O. D. V = $\frac{6}{60}$. Has a persistent hyaloid artery running forward from the division of the artery in the disc two-thirds the distance to the lens, O. S. Corrected Sph $+1.50$ cyl $+0.50$ ax 90 V = $\frac{6}{6}$ nosis, Congenital ptosis. Strabismus divergens. Persistent hyaloid in right eye.

Perhaps the most interesting deduction that might be made from a study of the above cases is the influence of the marriage of cousins in producing degenerate changes. It is generally believed by the laity that the marriage of relations will produce idiocy and other forms of degeneracy. This is not strictly true. If there be in a family a tendency along any line to degeneracy and the members of that family intermarry, the chances for the appearance of degenerate stigmata in their offspring is doubled. If, however, the members of the family have no hereditary taint, intermarriage may be practiced with im-

punity. Talbot (8, 8 Degeneracy Pg. 85-89) records a number of instances reported by other observers which show this to be the case, among others are those reported by Bourgeois and Liebault. Bourgeois gives the history of his own family, which was the issue of a union of the third degree of consanguinity. During the ensuing 160 years there were 91 marriages, of which 16 were consanguinous. All of these were productive. There was not a case of malformation or other physical or mental disease in the offspring.

Thiebault, 9 (9, Talbot's Degeneracy Pg. 87) reports a case of a slave dealer who died in the year 1849, at Whidale Dahomey, leaving behind him four hundred disconsolate widows, and about one hundred children. By the order of the king the whole family were interned in a certain district. These people intermarried and even to the third generation there was not a single case of congenital malformation. These cases are cited to show that it is not in itself the marrying of relatives which produces the degenerate condition, but it is the marrying of people each with certain hereditary tendencies which brings about these conditions. Very few of the families of today are perfect, and consequently we see and hear about so many cases of degeneracy resulting from the marriage of relatives. Perhaps no better example of this could be cited than the condition of the royal families in Europe today. Owing to the rules governing these families that no child of royal birth shall marry anyone except a child of royal birth, for generation after generation we have had the royal families of the various countries intermarrying. As a result of these consanguinous marriages we find a large number of idiots and moral and physical degenerates among these families. Among the cases cited we have three illustrating this same principle very nicely.

Cases V., VI. and VII. furnish us with an especially good example. Here are two brothers married to two sisters who were their cousins. As a result of this union there were four children, three of whom had retinitis pigmentosa, a degenerate condition, and as the result of the other there were three children, two of whom had retinitis pigmentosa. No previous history of eye trouble or degenerate conditions, of any kind, in the family, could be elicited. There must have been present here in the family, a tendency toward degeneracy and the two consanguinous marriages in each case doubled it.

Not less interesting is Case XII. Here is a family in which the

parental stock seemed to be perfectly normal. But as the result of the marriage of two first cousins we find four out of six of the children produced are albinos, typical degenerates.

Case XVIII. is similar. The patient's father and mother were first cousins. There were no traces that could be discovered of degeneracy in any of the ancestors. As the result of the union four children were born. Of these four, two showed signs of marked degeneracy. These were both idiots, both had microphthalmus, both had misplaced ears, and other signs of facial degeneracy.

Of the degenerate changes which we find in the eyes if we do not regard errors in refraction as such changes retinitis pigmentosa seems to be most frequent. Retinitis pigmentosa is a disease characterized by changes in the vessel walls, atrophy of the cells of the retina with a migration of pigment from the pigmentary membrane. Landolt 10 (10 *Archiv für Augenheil-Kunde* Bd. VII.) and Leber consider it a result of a vasculitis. Alt says that in its beginning pigmentary retinitis is a secondary affection produced by a pathological cell proliferation in the pigment epithelium. Berlin 11 (11 *Pathologische Anatome des Auges* 203) and Wagenmann 12 (12 *Klinische Monatsblätter für Augenheil-Kunde* Bd. IX. 277) found that by cutting off the blood supply to animals' eyes that there was an immigration of pigment into the retina and that it began at the periphery. There was, however, no atrophic condition of the rods and cones. We find that retinitis pigmentosa is frequently the result of consanguineous marriages. As shown by cases just mentioned and others, it is combined with degenerate changes, as polydactylism, as in case No. IV., microphthalmus, colobomata, cleft palate, adenoids, etc., in the same individual and other members of the family. It is frequently hereditary, as in Case IX. It makes its appearance just the same as other degenerate stigmata and it is accompanied by them. There is a striking similarity in the changes in the cortex of the brains of idiots. We find an atrophic condition of the cells and a thickening of the vessel walls. In the retina we find an atrophying of the rods and cones and a thickening of the vessel walls. The migration of the pigment is not essential for we have cases without increase of pigment. It may be presumptuous to say without further proof that such is the case, but it seems rational to think that the changes in retinitis pigmentosa are produced as a result of some interference with

the trophic centers of the retina, just the same as the production of cleft palate, aniridia, adenoids, small lower jaws, twisted noses, etc., are the result of some disturbance in their trophic centers. An interference with the blood supply alone is not sufficient to explain the changes.

There must be some disturbance of something concerned most intimately, more so than the blood vessels, with the nutrition of the part. And that something can only be the trophic centers in the central nervous system.

Albinism does not effect the eye in a way materially different from the other parts of the body. There is simply in the absence of pigment in the choroid just the same as from the hair and skin.

Case XXI. of persistent hyaloid is an example of the permanency of foetal structures so common in degenerates; accompanying it is a congenital absence of a structure Müller's muscle. The patient comes from a typical degenerate family, idiocy and suicide being present in her ancestors.

Case XX., one of congenital glaucoma, ought to be considered as one of the degenerate conditions of the eye. The change is probably due to the formation of anterior synechia, the result of failure of the anterior fibrous-vascular sheath to separate itself from the base of the cornea. It is an example of another persistent foetal condition. A condition which ought to have come about did not. We find an aunt of this patient to be crazy, an indication of a degenerate taint in the family.

It is interesting to note that in all the cases of colobomata and the one of aniridia case, there were a large number of degenerates in the families. We have here a condition very similar to cleft palate. In short, they are identical conditions. Both are simply due to deficiency in the closure of a foetal slit.

The cases of microphthalmus (Cases XIII., XIV., XV., XVI., XVII., XVIII., XIX.) show a typical degenerate condition due to a disturbance of the trophic influence. The eye is simply stopped at some stage of its development and remains there. It is interesting to compare these now developed eyes with the degenerated eyes of the blind invertebrates. Wagenmann has found that the lens and retina were almost the least of the structures acted upon. That the phyletic

degeneration does not follow the reverse order of development. (Archiv für Ent-Wickelumys Mechanik der Organismen VIII. 4.) None of the adult degenerate eyes resembling stages of past adult conditions. In some cases there is a retardation of development. He found that the older the animal, the more degenerate the eyes. They are eyes lost, the result of disuse. In the fish or insect at birth the eye is almost normal. As the animal grows it degenerates. In microphthalmus, however, we have a lack of development due to the lack of trophic nerve force and the eye resembles some embryonic stage more or less. These microphthalmic eyes show numerous embryonic structures, as aniridia colobomata. Both kinds of eyes, as the process increases, become smaller and smaller. The microphthalmic eye reverts toward the embryonic rudimentary eye, which is more or less perfect. The degenerate eye has a tendency towards a total loss of the eye by fatty degeneration and atrophic changes. The first is due to a lesion in the central nervous system, the latter to a condition in the eye itself, the result of disuse.

CHIP OF IRON IN EYE. EXAMINATION WITH FLUOROSCOPE NEGATIVE, WITH SIDEROSCOPE POSITIVE, EYE ENUCLEATED. SYMPATHETIC OPHTHALMITIS SIXTEEN DAYS LATER. RECOVERY. EXHIBITION OF SIDEROSCOPE.

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J. F. S., aet. 24, boilermaker's helper in the shops of the Rock Island Railway at Goodland, Kansas, was referred to me by Dr. F. H. Smith, the company's surgeon, on Dec. 23, 1899. Two days previously he had sustained a serious accident to his left eye. He and a fellow workman were cutting off the head of a bolt three-fourths of an inch in diameter. The patient suddenly felt something strike his left eye. The eye did not pain him much at the time nor during the

succeeding forty-eight hours. The first afternoon he experienced a feeling of nausea.

On examining the eye, the pericorneal vessels were found moderately congested. In the lower outer quadrant of the cornea was a linear wound extending from the sclero-corneal junction upward and inward toward the center of the cornea for four mm. A hernia of the iris protruded through the corneal wound.

The pupil was elongated toward the wound. The iris responded promptly to light. A faint red reflex was obtained from the upper inner section of the fundus. Some opacity of the lens was seen in its lower outer quadrant. Back of the lens a dark opaque mass existed, apparently blood. Tension — 1. Vision after pupil was dilated equaled fingers at one foot in temporal field only.

The hernia was excised, the temporal portion of the iris was then detached from the corneal wound, but the nasal margin remained adherent.

Through the corneal wound the tip of an electro-magnet was inserted but no evidence of metal existing near the wound was manifest. Nothing that appeared like metal was seen by focal or reflected illumination. During the following week the patient experienced several brief attacks of pain in the eye, and some tenderness to pressure over the ciliary body in the upper outer quadrant.

On December 28th Dr. Rivers saw the case in consultation with me, and inasmuch as the eye was comparatively quiet, advised to keep it under observation until the hemorrhage had cleared up.

On December 30th Dr. George Stover, in the presence of Dr. Stevens and myself, made a very careful examination with his fluoroscope, but was unable to see any foreign body in the eye. After the first ten days the eye was painless and the pericorneal congestion had very perceptibly diminished. Patient was permitted to make short visits to his home in Kansas.

On February 6, 1900, he returned, having been free from pain or any discomfort in the eye for a month. His vision had grown dimmer, so that he could but distinguish a hand as a moving object in the temporal field.

Desiring to learn, if possible, whether or not the eye contained a piece of metal, I constructed an instrument on the principle of the

sideroscope of Dr. Asmus of Dusseldorf. I am indebted to Dr. Jackson for the loan of a German edition of Dr. Asmus' work, descriptive and illustrative of the sideroscope, which was issued in 1898.

The instrument is simply a magnetized rod of steel 2 mm. in thickness and 11 cm. in length, suspended by some fibres of raw silk. The silk and rod are protected from the air by glass tubes. On the center of the bar is attached a small mirror 10 or 12 mm. in diameter. The instrument is so placed that when the magnet is at rest, the ends are respectively north and south. The room being darkened, a light is thrown onto the mirror, from which a beam of light is reflected onto a scale, the scale being so placed that the beam of light will strike it at the zero point. Having the instrument ready for the test upon the patient's return February 6th, the eye was cocainized and gradually brought in contact with the glass tube in which was suspended the magnetized bar. The bar was at once attracted toward the eye, giving positive evidence that the organ contained a piece of iron or steel. The test was repeated the same day in the presence of Drs. Ed. Jackson and W. W. Grant. On the following morning I repeated the test before the class at the Denver College of Medicine, after which, with the assistance of Dr. Grant, I searched for the piece of metal with an electro-magnet, entering the eye ball at the lower margin of the external rectus muscle near the equator. I did not pass the point of the instrument much back of the equator and failed to get the metal. I then enucleated. While I was dressing the stump, Dr. Grant opened the eye ball and found a chip of iron in the fundus of the eye near the optic nerve entrance enclosed in a mass of inflammatory deposit. The piece was 9 mm. long by 3 mm. wide at one end and tapered to a point at the other end, being 1 mm. through its thickest part. One edge was quite sharp. Weight 1 grain.

The wound was irrigated with 1-500 solution of formalin and the edges quilted together with Boeckmann's silver cat-gut.

On the fourth day after the enucleation, I noticed on the right eye a point of congestion near the nasal margin of the cornea. However, as the iris was normal in appearance and action, and vision was $\frac{3}{20}$ plus, I permitted patient to go home, advising him to return at once should the congestion increase.

Eight days after the patient returned home he wrote me he was

getting along nicely and asked permission to remain at home for another week. On the morning of the 25th of February, eighteen days after the enucleation, patient returned. He stated that his eye had not changed until two days previously, when there appeared to be some congestion of the ball. The next morning he noticed his vision was dim. Examination revealed considerable pericorneal congestion. The pupil responded fairly well to light. Extending from the posterior margin of the pupil onto the anterior capsule were numerous points of inflammatory exudate. No punctate dots had appeared on the anterior capsule nor on Descemet's membrane. The vitreous was slightly hazy and the optic disc decidedly hyperaemic. No tenderness of eye ball existed, though that morning patient noticed slight tenderness in the ball when washing his face. From the stump in the left orbit there was considerable muco-purulent discharge which the patient stated had increased very much during the previous forty-eight hours. Vision equaled $\frac{2}{3}$ minus.

I at once ordered xxx gr. doses of salicylate of soda to be taken every four hours. Within a few hours the patient was seen by Drs. Rivers and Jackson. That afternoon, with the assistance of Dr. Jackson, I dissected out the cicatricial tissue of the stump, aiming to include a section of the optic nerve.

Inunctions of 3 i ss of blue ointment were made twice daily. Eight grain solution of atropine instilled at intervals of three hours. By the following morning the posterior synechia were broken up and the pupil thoroughly dilated. Patient was confined to bed for three days in a darkened room. After the fifth day, the inunctions were omitted, but the salicylate and atropine continued. On the ninth day of treatment for the ophthalmitis the patient came to the office. The eye ball was then quite free from pericorneal congestion. Pupil was fully dilated. On Descemet's Membrane there were numerous punctate spots of inflammatory deposit. Adhering to the anterior capsule was a ring of pigment deposits marking the points where the iris had been attached. In the centre of the anterior capsule was a circular spot $1\frac{1}{2}$ mm. in diameter, composed of fine dark spots. The vitreous had cleared somewhat, and but little hyperemia of the disc remained. Vision equaled $\frac{2}{4}$ minus. On the twelfth day the salicylate disagreed with the stomach and was omitted for two days.

After sixteen days of treatment, the eye was free from any con-

gestion, the vitreous clear and the inflammatory deposits on the anterior capsule and posterior layer of the cornea disappearing. Vision equaled $\frac{3}{8}$ with + .50s.

Sympathetic ophthalmitis is one of the most perplexing, and at the same time, one of the most serious affections of the eye that we have to deal with. Most of the cases go on to blindness. The cases that develop after enucleation of the fellow eye, are more hopeful than where the process develops previously. Relapses are very liable to occur so that a guarded prognosis is advised in cases where the disease has apparently yielded to treatment.

The case I have reported has seemingly recovered, and we can hope that no relapse will occur.* In handling this case several factors entered into the treatment of the ophthalmitis. The mercurial treatment is an old one. The dissecting out of the cicatrix and removal of a section of the optic nerve has been given credit with aiding in saving the sympathizing eye.

The use of the salicylate of soda in sympathetic ophthalmitis has been brought prominently before us by Dr. H. Gifford of Omaha in a paper which he read before the Ophthalmic Section of the A. M. A. at the meeting in Columbus, Ohio, June, 1899. (See Journal A. M. A., February 11, 1900.)

A great deal has been claimed for the sideroscope in not only detecting the presence of iron or steel in an eye, but of also locating it.

The instrument I show you is much the same as the Asmus instrument, and certainly responds promptly when a bit of iron or steel is brought within close range. To use it properly and for delicate testing, it is necessary to have it on a solid foundation that it may get perfectly quiet, and at the same time be removed several feet from iron or steel and electrical currents.

Steele Block, 16th and Stout Streets.

* Patient was reexamined May 7th and July 7th, 1900, and found to have vision of $\frac{20}{15}$

TOTAL CILIECTOMY.*

By M. F. Weymann, M. D.,

ST. JOSEPH, MO.

Professor of Ophthalmology and Otology, Central Medical College.

Few conditions have had proposed for their relief as many surgical measures as the post-trachomatous malposition of the lashes, and, as elsewhere, this superabundance of procedures is in itself evidence of the insufficiency of the methods. We do not desire to deny their usefulness categorically, but so far nothing has been able to relieve permanently the very worst cases where the ciliary border has been so long and so thoroughly invaded by chronic inflammation, thickening and subsequent phlogoplastic shrinkage, that there no longer exists a row or line of cilia at all.

In these most intractable cases the regular lashes are largely gone, but they are more than replaced by innumerable "false cilia." In the production of the latter the irregularity of grouping is so great that I consider the term of "caterpillar margin" a most suitable descriptive. The normal lashes are stout, curved outward, and well pigmented, while the "adventitious" specimens are stunted, light in color, lacking the regular pigmentation, and growing anywhere, even up to the white line marking the free margin of the tarsal cartilage. In this connection I would state that this sort of distichiasis is often found on lids with comparatively little incurvation of the cartilage (entropium).

In my own practice I have followed the indications enumerated below in practicing total extirpation of the lash-bearing border:

1. Where the caterpillar margin exists.
2. Where ordinary methods have failed to give permanent relief.
3. Where the usual means imply more expenditure of money and time than the patient is able to bear. (In this latter instance I fully explain and let the patient give decision.)

Objections to the operation:

1. The vandalism of the work, marring the image of Him.
2. Depriving the eye of a natural protection from mechanical injury.

Refutations:

Ad 1. If a sore-eyed individual is a "thing of beauty and a joy forever," then I should like to know it. Someone may say that we can cure "sore eyes," but that we cannot grow new lashes. I wish to state that my operation does not apply to cases otherwise curable, but to those that have been cut and treated and stitched without avail. Besides, the cosmetic effect of lashes (ordinary) is greatly overrated. It is surprising how many people fail to notice their absence after extirpation. In any case, a person without them, and with good eyes, looks a great deal better than someone with reddened and discharging optics.

From a practical consideration, the question fares similarly, for anyone prefers a good, serviceable eye without lashes to an inflamed eye, and as an item of beauty such cilia would never be enumerated, anyway.

Ad 2. Lashes as dust-sifters have been given too much credit. Of course, they do protect, especially when a heavy cloud of dust is seen to be approaching, but even then only imperfectly, for when particles fly fast and thick, we simply close our eyes. If we have no warning at all, the reflex is not sufficiently prompt to give us protection, and our lashes count for naught. Perspiration is dammed back chiefly by the brows, not by the lids.

However, with all these shortcomings of the ciliary service I should hate to remove them except "for cause." Considering that we can get a fairly efficient artificial protection and remove the watering, the soreness, the redness, the swelling, the loss of sight, the pain, the dread of light, and the disgusting scabs and crusts, we think we have

good cause, indeed; for it means to the organs of sight a cure not otherwise obtainable.

I append the report of my first case subjected to total ciliectomy, in 1898:

Mr. C., 23 years of age, with receding forehead and idiotic expression of face in general, is brought to me for an eye-affection dating back to his early infancy. He lacks power of distinct articulation, mumbling somewhat in the manner of people with very bad cleft palate; also is wanting seriously in muscular co-ordination, reeling and staggering when attempting to walk. Head bowed down owing to great photophobia, lids heavy and wrinkled, cutaneous excoriations from lacrymation, and outer canthus much contracted, but deeply sunk behind a mound-like bump of skin. The latter, on examination, is shown to be a duplicature of dermal tissue, such as we observe forming when the lids are closed with great force; instead of being, however, a mere apposition of folds, it had become a solidly united mass by obliteration of the excoriated interpiculate furrow. This condition, aggravated by the photophobia, made eversion impossible.

After the use of cocaine, turning of the lid showed an obliterated cul-de-sac with the conjunctiva over the lid in a glistening white condition, the result of trachoma in the cicatricial stage. On the upper outer edge a few crumbling granulations were left, and on the lower even typical ones persisted. Entropic curvature was impossible, owing to the almost complete atrophy of the tarsal cartilage. In fact, this almost rendered continued eversion impossible, the lid rolling away under one's fingers with the least upward tendency of the ball. Cornea showed some pannus above, old ulcer scars below and in center. Caterpillar lashes, but not visible ordinarily. Action of orbicularis unique. After eversion the lids first closed naturally, but immediately afterward there would come a powerful contraction of the orbicularis fibres close along the free border of the upper lid, resulting in a rolling-up motion of the upper lid just like that of a stage-curtain. With this, the "caterpillar" disappeared completely, while the lids seemed at the same time drawn up slightly, initiating the second movement for permanent closure. At first I attributed this drawing up to the levator palp. sup., but repeated trials demonstrated that it was apparent only and due to the illusive upward motion caused by the rolling in of the upper lid.

Though I have often seen tonic blepharospasm of the worst type in scrofulous eye affections, nothing ever resembled the action of these upper lids. The lower were inverted in the usual way.

Treatment indications:

I. Measures addressed to primary lid affection.

II. Removal of secondary consequences: (a) canthoplastic operations; (b) plastic correction of the "skin-bump"; (c) removal of lash irritation; (d) resection of perifissural obicularis fibres to prevent blepharospastic inversion of the upper lids.

Seeing the chief source of trouble in the lashes and considering their vicious arrangement, together with the complete loss of tarsal stiffness, I decided to remove completely the lash-bearing border and the fibres of the orbicularis around the palpebral fissure (above only). Operation performed at St. Joseph Hospital, before the students of the Central Medical College. Removal of stitches on third day. On fourth day patient opened his eyes without distress in ordinary room light—a performance unknown and impossible to him before. Cu SO_4 touchings were made for about three weeks, when it became apparent that the rest of the programme had become superfluous.

I saw this patient some four months later with his eyes wide open, with very fair sight, in spite of the corneal scars, and, to my great surprise, without the reeling and staggering uncertainty of gait noticed before. He still showed a peculiar swaying motion, but there was certainty and precision in his locomotion. Even his idiotic expression had greatly vanished.

The general improvements I do not, of course, attribute to the operation per se, but when we consider that the sum total of all the impressions forming mind are mostly by way of the organs of sight, of the use of which this man had practically been deprived since childhood, the change assumes quite a natural aspect.

I have detailed this case with some minuteness as a type. Since then I have operated on a number of other cases with equally satisfactory results. I also have tried excision of a part of the lash border, but with bad results, because (1) the contrast with the remaining part makes the defect immediately and shockingly noticeable; (2) in smaller pieces some lashes are apt to be missed.

The operation can be painlessly done under subcutaneous injec-

tion of 1 per cent cocaine in saturated solution of boracic acid. The syringe should enter in the center of the lid, about 3 mm. from the free border; then the needle point should be pushed to the external canthus, whence it is withdrawn in little retractive efforts, with each of which a drop or so should be discharged. Treat inner side likewise.

Make an incision 3 mm. from the free border of the lid and parallel to the latter, and carry it from canaliculus to outer canthus. This should go as deep as the cartilage, but the latter must be respected. To avoid possible injury to the ball, and, also, to have a support, the lid is tensed on a rubber spatula. Pass a cataract knife through the lash-bearing border thus marked off by entering, near the center of the flap, between the tarsal cartilage and the superincumbent parts. It is essential to hold the knife well down to the tarsus, so that no tissue containing hair-roots can escape. As the blade emerges in the upper (first) incision, the edge is turned forward and the lash-bearing border cut. The lid is now well tensed by a forward motion (away from the globe) of the spatula, while the surgeon picks up, with a fixation-forceps, the lash bridge at its divided center. Each half is detached with the cataract knife passing over the cartilage in a slow see-saw motion, its blade being held after the manner of a razor, while the flap is steadily pulled away as if in an attempt to peel it off. A well-denuded surface should be whitish and smooth throughout. If little soot-like specks are visible, it is a sign that ciliary follicles remain, which must be scraped off. Further orbicularis resection is governed by general principles. Two small vertical incisions are made to facilitate the slipping of the skin. They run upward from either end of the first incision and, above the latter, should not go deeper than the skin.

Eight or more stitches are needed along the full length of the lid, and one or two for each accommodative incision. A thin curved needle with silk No. 6 does the best in my hands. In passing the point through the cartilage the full thickness of the latter should not be penetrated on account of the danger of thread friction to the cornea. Besides, even the smallest bridge of tarsus tissue will outlast any demand of approximation.

The operation is somewhat bloody, several small arteries needing temporary compression, or, still better, torsion.

The following historical data are taken from the encyclopedic *Traite d'Ophthalmologie* of my esteemed teacher, Prof. de Wecker:

1. Cutting off the whole thickness of the lid sufficiently wide to include all the lashes.—Bartisch, Cortum, Heister; 1739.
2. Excision of lash-bearing skin-band without covering the defect. Beer & Jaeger, 1818.
3. Dissecting up of lash-bearing border, destruction of hair-follicles on exposed surface by means of nitric acid (!), and pasting back of skin by means of sticking plaster (!!). Berlinghieri, 1825.

De Wecker admits that the object aimed at is very desirable, but condemns the removal of the lashes on account of the vicious cicatrization and nodular scars that result. It is easily understood that such coarse procedures should have had consequences such as are charged to them. The mode of operating described by me will give no room for complaint on this score. It affords certain and lasting relief.

St. Joseph, Mo.

At the last meeting of the Minnesota State Medical Society, Dr. Frank C. Todd, of Minneapolis, read a paper in the Section of Diseases of Children, on the subject of "Prophylaxis of Ophthalmia Neonatorum." He said that with the single exception of atrophy of the optic nerve this was the most frequent cause of blindness. He urged as a routine practice the use of the 2 per cent. silver nitrate solution as used originally by Crede. In conclusion he suggested the following rules: 1. Whenever possible and practicable, the head should be delivered without puncturing the membrane. 2. In all suspicious cases born in public hospitals the Crede method, including the use of 2 per cent. silver nitrate solution, should be practiced. 3. In all cases, when the Crede method is not practiced, the eyelids and face should be mechanically cleansed with an aseptic solution, and one or two drops of a 5 per cent. protargol solution be dropped between the open lids. 4. When the disease appears in one eye, the other should be immediately protected by a shield, or, if this cannot be procured at once, by any kind of a clean covering that will prevent infection of the well eye.

THE OPHTHALMIC RECORD.

*A MONTHLY REVIEW OF THE PROGRESS OF
OPHTHALMOLOGY.*

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No. 9. NEW SERIES.

EDITORIALS.

LISTING'S PLANE.

As is well known, Listing's plane passes through the centers of rotation of the two eyes, vertical to the visual axes when the eyes are in the primary position, and is fixed, that is, it does not change with the movements of the eyes. In this plane, Listing taught, is to be found the axis of every possible rotation of the eyes, both from the primary to any secondary position and from any one secondary position to any other secondary position. Maddox in his splendid work on the Ocular Muscles says (p. 37): "However many and complex the motions of the eye may be, the ultimate result of them all is equivalent to a single rotation of the globe about some one axis in Listing's plane, provided the eye has started from the primary position." In a foot note, on page 38, he says: "It will be seen that I have guarded myself from stating that rotations from one secondary position to another are about axes in Listing's plane."

The object of this communication is to show that only two rotations can take place on axes in Listing's plane, and then only because the vertical transverse planes of the eyes coincide (practically) with the Listing plane: The first is rotation directly up and down from the primary position, the rotation being on the transverse axis of the eye, which, during this motion, remains in the Listing plane; the second is rotation in the horizontal plane from the primary position, this rotation being on the vertical axis of the eye, which during this motion remains in the Listing plane. All other rotations of the eye from the primary position are on axes that, at the beginning, are in

Listing's plane, but leave it as the transverse plane of the eye leaves it. No rotation of the eye from one secondary position to another can be on an axis in Listing's plane.

Maddox, after speaking, as quoted above, on the rotation of the eye from the primary position to any secondary position, says, on page 40, that "when the eye starts from the primary position and glances towards an object situated obliquely (e. g., up and to the right), the line of fixation takes the shortest possible cut to its new direction, and in so doing must necessarily sweep along a plane common to its original and its new position. To permit it to do this, the eye ball must rotate around an axis perpendicular to this plane, and therefore perpendicular to the line of fixation throughout the whole of its motion." The plane at right angles to the line of fixation when in the primary position is the transverse plane of the eye, the plane at right angles to the line of fixation in the secondary position must also be the transverse plane of the eye, therefore the axis around which this rotation occurs is in the transverse plane of the eye. An axis in Listing's plane could not remain at right angles to the line of fixation as it moves up and to the right. Not only is the shortest cut taken by the line of vision as it moves from the primary position to any secondary position, but the same law governs the movements of the eye from one secondary position to another. This can occur only when the axis of rotation is in the transverse plane of the eye. If the rotation in an oblique direction from the primary position, or from one secondary position to another, were on an axis in Listing's plane, the line described by the visual axis would be a curved line, which cannot be the shortest distance between two points.

In justice to Listing, I quote from his law concerning the "angle of torsion": "As if the eye had arrived at this position by turning about a fixed axis perpendicular to the first and second positions of the line of fixation." This would have been both clear and correct if he had left out the word "fixed," or if he had followed the word "axis" with the words "in the transverse plane of the eye." In any single rotation of the eye the axis is fixed in a movable plane, and that plane is the transverse or equatorial plane of the eye.

In the study of the rotations of the eyes, "Listing's plane" and "Listing's law" have hindered progress.

G. C. SAVAGE.

CORRESPONDENCE.

BORTHEN'S LEPROSY OF THE EYE.

Chicago, August, 1900.

To the Editors of the Ophthalmic Record:

Dear Sirs—In the *Annals of Ophthalmology* for April, 1900, I had the pleasure of publishing a review of a book by Dr. Lyder Borthen of Thronthjem, Norway, entitled "Die Lepra Des Auges." Such a wonderfully scientific work is it and so full of interest and suggestion to the ophthalmic surgeon, apart indeed from its attractiveness as an artistic product of printer's skill, that I had hoped the *Record* might contain a review of equal length; but as I have seen no mention of it in your pages, I beg of you the courtesy to allow me to call your readers' attention to Borthen's *Leprosy of the Eye*, before it may become too late.

There are 196 pages, exclusive of cuts, devoted to an exhaustive analysis of leprosy as it effects ocular tissues, dividing its manifestations into the two great groups of maculo-anesthetic, and tubercular (nodular) leprosy. Although the work is thoroughly scientific, it does not deal alone with epidemiological problem of the disease, for Borthen's large experience with leprosy has enabled him to finish every chapter with rational and practical paragraphs on the treatment in detail, as distinguished from the usual treatment of the various tissue changes discussed in general ophthalmological handbooks.

Appended to Borthen's sections is a chapter by Dr. Lie of the Leprosy Hospital in Bergen, Norway, dealing with the pathological findings developed in the hospital's laboratory.

At the end there are 24 pages of photogravures and chromolithographs, each page containing at least two, many more than that, illustrations of the actual condition of the eye or its surroundings as found in the hospital. These are fascinating and lifelike in the extreme and convey more knowledge of the ravages (and even diag-

nosis) of leprosy than can be found in the same number of pages of simple text.

I do not wish this to be considered a review of Borthen's work. It seems to me, however, that all readers of the Record must be interested in even such unusual forms of ocular pathology as leprosy, and though we in this country are so far free from common contact with it, yet any one of us may some unexpected day have a case before us, or may find ourselves in a region where the disease is epidemic. For these reasons, or for the simple fact that a knowledge of all forms of disease most surely aid us to the recognition of any one form, however rare, I think Borthen's book ought to be known, and the thanks of his American colleagues extended to him for his self-sacrificing devotion to our science. Respectfully yours,

ALBERT B. HALE.

APPARENT POSITION ASSUMED BY AN OBJECT WHEN
SEEN THROUGH A PRISM BASE OUT.

Louisville, Ky., August 6, 1900.

To the Editors of the Ophthalmic Record:

Dear Sirs—A short time ago there was considerable discussion in the Ophthalmic Record concerning the apparent position assumed by an object when seen through a prism base out, Dr. Duane finally making the most satisfactory statement on the subject. Dr. Duane wrote that he had made a number of experiments upon his patients, and that the object, contrary to what might be expected, under these conditions, always appeared farther off, or at least no nearer. He was, however, unable to explain satisfactorily the phenomenon. I agree perfectly with Dr. Duane, but in addition I believe that I can throw some light on the explanation.

When the prism, base out, is placed before one eye, it is necessary for the eyes to converge in order to see the object single, and owing to the close association between accommodation and convergence, a strong stimulus is sent to the ciliary muscle. In order to see the object distinctly, however, the accommodation must remain as before, and I believe it is the effort to overcome this stimulus to the ciliary muscle that gives rise to the idea that the object is distant.

Sincerely yours,

F. H. VERHOEFF.

REPORTS OF SOCIETIES.

OPHTHALMOLOGICAL SOCIETY OF THE UNITED KINGDOM.

G. Anderson Critchett, M. A., F. R. C. S. E., President, in the Chair,
FRIDAY, JULY 6th, 1900.

"HOLES" AT THE MACULA.

Mr. F. M. Ogilvie read a paper on one of the results of concussion injuries of the eye—"holes" at the macula. He had collected all the published cases presenting this lesion, and he divided them into two large classes: (a) those in which there was no detachment of the retina, and (b) those in which detachment was present. He showed lantern slides of the appearances of the fundi in all these cases which invariably followed concussion injuries, such as blows from blunt objects, from stones thrown from catapults, while one most interesting case he had previously shown to the Society in which the injury was due to a bullet which apparently hit the back of the eye in passing through the orbit. He advanced several theories to account for the holes which, as a rule, were about $1\frac{1}{2}$ dioptré in depth. There was in nearly all cases a scotoma corresponding to the hole. He summarized the conditions brought about as follows: (1) The lesions are definite and central; (2) they are the direct result of violence; (3) the injuries are permanent; (4) the general disturbance of vision is not great; (5) they are the result of concussion injuries only.

Mr. Adams Frost endorsed all that Mr. Ogilvie had said regard-

ing the appearance of the lesion, and in view of the fact that no case had as yet been examined pathologically he suggested that possibly a similar condition might be brought about by a like injury in the eyes of animals or in eyes recently excised.

OPTIC NERVE TUMOR PREVIOUSLY REPORTED.

Mr. C. Devereux Marshall read some further notes of a case reported to the Society in November, 1899. The patient was a woman, aged 46, upon whom he operated at the request of Mr. Poulett Wells on November 30th, 1897, when the contents of the orbit were thoroughly removed. She remained in very fair health until shortly before her death, which took place on May 4th, 1900 (2½ years later). Owing to the kindness of Mr. Austin Reynolds, who attended her up till the time of her death, which occurred very suddenly, Mr. Devereux Marshall was enabled to obtain a post-mortem examination. The necropsy was made on May 6th, and the following was the condition found:

On removing the calvaria the middle meningeal vessels were found to be distended, and the Pacchionian bodies very large. The cerebral convolutions were very much flattened. The optic chiasma had entirely disappeared, and its place was occupied by a large diffuse and very soft tumor, about the size of a bantam's egg. So soft was it that its actual limits could not be defined, and the greater part of it could easily have been washed away with a moderately strong stream of water. The center of the growth was the right optic tract, and it spread along the chiasma, involving the optic tract and optic nerve on the left side, both of which were considerably enlarged. The tumor reached the pons on both sides, invaded the lateral and third ventricles, and on the left side the optic thalamus and corpus striatum. The growth was so very diffuse that it appeared that the third, fourth, fifth, and sixth nerves on both sides were more or less included in it. On both sides the under surfaces of the temporo-sphenoidal lobes were invaded. The tumor was still further broken down by recent hemorrhage in the vicinity of the left optic tract. No separate deposits were found in the brain, and the growth had evidently spread by continuity only. In the thorax nothing abnormal was found, except that the mitral valve was very much thickened. In the liver a few cysts were found containing clear fluid, but it was otherwise healthy, and there was no sign whatever of any new growth. The spleen, pancreas, and

uterus were free from disease, but the kidneys were slightly granular, and the capsule tore the kidney tissue in separating. The aorta was somewhat atheromatous. The microscopical appearance of the growth closely resembled those of the original nerve tumor. The main substance of it was made up of a network of irregular branching cells, in which were small spaces mostly circular, similar to those described as being present in the original nerve tumor, and which were thought to be channels from which the nerve fibres had disappeared. Seeing that this also was a growth mainly involving the medullated nerve structures, probably the same explanation of the spaces held good. Here and there in the growths were strands of a dense fibrous tissue in which blood vessels were seen in section.

Briefly, the neoplasm seemed to be due to an immense overgrowth of the connective tissue framework of the nerve, mainly the neuroglia, but also of the more fibrous prolongations from the pial sheath. The optic nerve on the opposite side was much enlarged, and on examining it microscopically the sections were seen to present precisely similar appearances to those of the right nerve, which was described in the first paper. Mr. Devereux Marshall added that in the last volume of the Transactions would be found a paper by Bullar and himself, the basis of which was a case of optic nerve tumor somewhat similar to the one described that evening, and at the present time (three years after removal) the patient was alive and well. In that paper the question of prognosis was fully discussed, and the conclusion arrived at from published cases was that the disease, although of not a very malignant type, could by no means be considered innocent, and it was advisable to remove it as thoroughly as possible. This remark was justified by the present case, which, although removed as completely as possible, yet the nerve was affected further back than the orbit, and this was of course the way by which the growth reached the brain.

PSEUDO-GLIOMA.

Mr. Percy Flemming read a paper on three cases of ophthalmitis (pseudo-glioma) in children.

Case 1 recovered after a four months' illness, the main symptoms being irregular pyrexia, vomiting, head retraction, and diarrhoea. There was a history of convulsions and ear discharge, but no history of syphilis or acute specific fever. Case 2 died with typical posterior

basic meningitis and pus in right middle ear. (This patient had an attack of chicken-pox four weeks after the eye became affected.) Case 3 died after an illness very similar to Case 1, and post mortem was found to have basic meningitis; middle ear healthy.

These cases, considered in relation with others published, might be taken to indicate that meningitis was the common cause of this particular form of ophthalmitis, and, further, that middle-ear disease was a likely cause of the meningitis. The following objections were urged against this view: (1) The fact that these cases in children rarely end fatally; (2) pseudo-glioma is a rare complication of posterior basic meningitis, as was also optic neuritis; (3) the usual unilateral character of the affection. Mr. Flemming considered that the eye condition was part of a septicaemic or pyaemic process, which in most cases was limited to the eye, such cases recovering; while in others the meninges might be affected by the same process, these cases terminating fatally. The otitis might be the starting point of the infection, and in any case of ophthalmitis (pseudo-glioma) it was most important to have the ear examined, and even to puncture the membranes though apparently healthy.

ALVEOLAR CARCINOMA OF EYELID.

Mr. Kenneth Scott and Mr. John Griffith read a paper on a case of alveolar carcinoma of the eyelid, which was removed from an Egyptian. The specimen on examination proved to be a carcinoma of the Meibomian glands.

CARD SPECIMENS.

The following were shown: Mr. E. W. Breweston: Case of pseudo-glioma. Mr. W. T. Holmes Spicer: Sections of conjunctiva from a case of spring catarrh. Mr. W. H. Jessop: Tuberculous ulceration of the conjunctiva. Mr. W. Adams Frost: Peculiar crescentic opacities in the cornea. Mr. Treacher Collins: A case of congenital notch in each lower lid with defective development of the malar bones.

NEWS ITEMS.

*Personals and items of interest should be sent to
Dr. Frank Allport, 92 State St., Chicago.*

FOR SALE, AT THE GREATEST HEALTH RESORT OF THE UNITED STATES, situated in the South, my special practice of the eye, ear, nose and throat. The purchaser must be entirely proficient in this specialty in order to retain the support of the general practitioners who have referred their work to me. None need correspond unless able to pay \$1,500 in cash and the balance on time if desired. A splendid opportunity for one desiring a change to the South and at the same time entering into an established practice. Address, 8—19 Ophthalmic Record.

ERRATA. In Dr. M. F. Weyman's article on Venous Pulsation in the Fundus Oculi, published in the August number of the Record, in tenth line from beginning should read "perhaps the norm (rule) under," etc.

Dr. J. A. Lippincott of Pittsburg has been spending the summer at his summer residence at Niagara Falls, Canada.

The Chambers, Inskeep Ophthalmometer has received the highest award at the Paris Exposition.

Dr. G. Sterling Ryerson of Toronto, Canada, has returned from South Africa and resumed practice. Dr. Ryerson acted as consulting oculist to the British army, as well as Red Cross Commissioner on Lord Roberts' staff.

Dr. L. Webster Fox spent the summer in the woods of Maine.

Dr. Wendell Reber spent a few weeks at Grand Pré, Nova Scotia.

EXOPHTHALMIC GOITRE.—Hyoscine hydrobrom. gr. $\frac{1}{800}$ and picrotoxin gr. $\frac{7}{10}$ — $\frac{1}{10}$ given over a protracted period have had good results.—Herrick.

St. Luke's Hospital, of Chicago, Ill., has received a bequest of \$5,000 from the late Mrs. Effie McKindley.

Dr. C. M. Robertson, of Davenport, Iowa, was recently elected president of the Scott County (Iowa) Medical Association.

Dr. H. Dohnberg, professor of ophthalmology at St. Petersburg, was shot and killed by a military officer to avenge a private injury, according to accounts in the lay press.

C. Devereux Marshall, F. R. C. S., has been appointed assistant surgeon to the Royal London Ophthalmic Hospital (Moorfields).

Lewis Stephen Pilcher, M. D., LL. D.—The degree of Doctor of Laws has been conferred by the University of Michigan and Dickinson College upon Dr. Lewis Stephen Pilcher, of Brooklyn, editor of the *Annals of Surgery*.

The New York School of Clinical Medicine has not been discontinued. We have been requested to publish this statement in order to refute the erroneous announcement to the contrary appearing in a few of the medical journals.

It is stated that there are twice as many persons studying in the so-called schools of mental healing, faith cure, Christian science, and the like, than in all the medical schools in the country combined.

The number of medical students attending the German universities has very distinctly fallen off during the past ten years, the decline, taking all the universities together, amounting to no less than twenty-five per cent.

The Prince of Wales is now a fellow of the Royal College of Surgeons. The president of the college, Sir William McCormac,

headed a deputation that presented his royal highness with the diploma at Marlborough House.

We have been frequently asked by correspondents the name of a reliable imprinter of valuable foreign medical books and periodicals. We beg leave to refer such correspondents to G. E. Stechert, 9 E. 16th St., New York City.

Dr. William C. Bane was recently elected clinical professor of ophthalmology and otology in the Denver College of Medicine—University of Denver. He was also recently appointed as eye and ear surgeon on the staff of Arapahoe County Hospital.

The medical building for the Cornell College of Medicine at Ithaca, which is in process of erection, will cost about \$100,000, and will be a model of its kind. When completed Cornell will have facilities for instruction in medicine second to none in the country. A large attendance is already assured.

During the summer in Philadelphia there appears to have been a mild epidemic of catarrhal conjunctivitis, or, according to the papers, "pink eye." The disease is attributed primarily to the hot weather and draughts and dust encountered on the trolley cars, which produce cold. The dust is supposed to act as the exciting cause of the conjunctivitis.

For boils, furuncles, etc., around the lids, the following has been recommended:

℞ Ol. oliv. opt. ʒ x v.
 Plumbi Oxidi. ʒ i i j x ʒ v i.
 Ol. lavandulae. ʒ i j.

This is Hebra's diachylon ointment, which may be applied instead of employing the knife.

Throwing missiles at passing street cars, which has become quite an amusement on the part of the coming generation, should be summarily dealt with by municipal authorities. Mr. George N. Starr, of Chicago, Ill., was recently riding on an open car in this city, when

he was suddenly hit in the eye by an apple, thrown by a boy standing on the sidewalk. The recovery of the eye is doubtful. Unfortunately the boy has not been found.

Notice.—All surgeons, assistant surgeons, acting assistant surgeons or contract surgeons, and hospital stewards, who served in the Army or Navy of the late Confederate States, will please send their postoffice address to Deering J. Roberts, M. D., Secretary Surgeons' Association, C. S. A., Nashville, Tenn.

Dark Sclerotics and Fragilitas Ossium.—A. Eddowes has observed the tendency to broken bones in those having very dark sclerotics. At the recent meeting of the Dermatological Society of Great Britain he showed such a case and mentioned others. Surgeons seem not to have noted the association. The transparency of the sclerotics indicates a lack of vibrous tissue in the framework of the various organs, and might explain the want of toughness in the bones of these individuals.

We are in receipt of an interesting letter from Dr. G. C. Savage, of Nashville, who has something to say concerning some of the important points which he desires to bring out in his new book, the title of which will be "Ophthalmic Myology."

He proposes to make this book a systematic treatise of the subject, but says it will not be out for some time yet. He hopes to make the subject clear, which is certainly something for which most of us would be sincerely grateful. If the doctor has this subject clearly in mind, we hope he will hasten to afford the rest of us a similarly delightful mental condition. He hopes to show conclusively that Listing's plane is an arbitrary and useless one, and that rotation does not take place on fixed axes in this plane per se. Dr. Savage still adheres to the orthodox idea of a graduated tenotomy, and evidently feels that it is little short of grounds for criminal proceedings to completely sever an ocular muscle, even in cases of profound strabismus.

HEADACHE FROM EYE-STRAIN.—Dr. Casey A. Wood says that the site of the ocular headache in the order of frequency is: (1)

the supra-orbital; (2) the deep orbital; (3) the fronto-occipital; (4) the temporal. The character of the pain is more likely to be dull and heavy than very acute. The existing causes are tasks which require the use of the accommodation and convergence, reading, writing, drawing, painting, typewriting, sewing, music, card-playing, billiards, shopping, riding in trains and street cars, etc. Long-sighted people suffer more from headache than the short-sighted. Insomnia, dyspepsia, pelvic disease predispose to ocular headache. The author is opposed to internal drug treatment, but advises very hot or very cold fomentations. In conjunction the following mixture may be rubbed over the forehead and temples, or a towel, wet with one part in ten with ice-water, may be laid over the closed eyes and forehead while the patient is lying down. Spirits of lavender, alcohol, a a fl 3 i i i spirits of camphor, fl 3 i. The author also suggests other remedies.—*Medical News*, July 28, 1900.

THE ETHICS OF SECRECY IN THE LEARNED PROFESSIONS.—C. R. Straton compares the customs of the past with those prevailing and the rules of action in England with other countries relative to the confessions made to attorney, physician, or priest. The surgeon's advice often being essential to the establishment of facts upon which justice can be based, it is held that excluding the physician from the witness stand often interferes with the proper administration of justice. Professional secrecy has reached a higher development in France than elsewhere, and a brief sketch of its evolution and operation is given. Possible changes in the law of England are considered, the tendency of the times being not to exclude any evidence which may lead to justice. A plea is made for the observance of the moral proportion of things, and a note of warning is sounded before the medical profession drifts into the doctrine of absolute secrecy under all circumstances. Safeguards should be devised to prevent ourselves from being made the passive agents of injustice and wrong.—*British Medical Journal*, July 21, 1900.

The annual convention of the American Association of Opticians began at the Hotel Cadillac, August 14th, and continued several days. Nearly two hundred delegates, eminent in the profession, from all parts of the United States and Canada, were in attendance. A method

of testing the eye-sight by the aid of the camera, invented by a Wisconsin man, was demonstrated before the convention. The first day was occupied with the reception of the delegates and preliminary work of a routine nature.

THE EYE-SIGHT OF SCHOOL CHILDREN.—Dr. Wallace Pyle, who was commissioned by the Jersey City Board of Education to examine the eyes of the pupils of Public School No. 1, has submitted a report of his investigation. He examined three hundred and fifteen pupils. Of these only sixty-nine had perfect eyes, and seventy-one of the whole number were in danger of permanent injury because of neglect to provide them with glasses. In the majority of cases the defect was slight and capable of correction by glasses. There were nine cases of trachoma.

THE BROOKLYN HOMEOPATHIC HOSPITAL will soon become a city institution. Under an act passed by the last legislature and approved by the mayor, the city undertook to purchase the hospital and run it as a public institution. When the details came up for settlement there was \$70,000 of debts on the hospital, which the city was called upon to assume. President Guggenheimer objected to this course until he had examined the assets. At a recent meeting he expressed his satisfaction with the arrangements, and it was agreed that the hospital should turn over its property to the city, which should assume the debts of the institution.

SOME OBSERVATIONS UPON SYPHILITIC MANIFESTATIONS IN THE UVEAL TRACT: THE IRIS, CILIARY BODY, AND CHOROID.—P. T. Vaughan says that during the past year seventy cases of syphilis have been seen by him exhibiting eye symptoms, and that of this number the uveal tract (iris, ciliary body, and choroid) was involved in twenty-nine, or 41.4 per cent. of the total number. He describes the symptoms of the different conditions found, quoting from various authors to substantiate his views, which are also supported by clinical histories of some of his own cases. He states among other facts that his own observation has been that the symptoms of plastic and serous iritis when due to syphilis vary little from the symptoms of these varieties of iritis when due to other

causes. Pain is one of the most prominent symptoms, and it extends to the branches of the supraorbital nerve. The pain is usually worse at night, and is always aggravated by bright illumination.—New York Medical Journal, July 28, 1900.

The following is a unique announcement of the prospectus for ophthalmology and otology for the ensuing year in the announcement for the Dunham Medical College:

OPHTHALMOLOGY AND OTOTOLOGY.—The teaching of this branch is purely Homeopathic, but not ignoring the sphere of surgery, as applied to eye or ear. While the use of topical applications is not advised, they are noticed and the evils of their use pointed out. Nearly every practitioner of experience has cured some chronic disease of the eye after topical treatment continued for weeks, months and often years, had utterly failed. Frequently the prescription that brought about the cure was made for some ill entirely distinct from the eye trouble. A Homeopathic cure blindly made. This clinic, one of the largest at the college, affords plenty of material for drilling students in ophthalmic therapeutics (Homeopathic), refracting, the use of the ophthalmoscope, retinoscope, otoscope, and all practical work pertaining to this branch of the curriculum.

The treatment of strabismus from the standpoint of the family physician is summed up by Duncan as follows: 1. In a child aged three years or over, he would in every case (with the exceptions noted) advise a thorough examination of the eyes, so as to ascertain the refraction. 2. He would advise that this be done as soon as possible, but if some weeks must elapse before this can be done, he would use atropin drops once, twice or three times a day in both eyes, ordering that the drops be left off for at least two weeks before the child goes to be examined. 3. If it be reported to him that the child needs to wear glasses, he would exercise his influence with the parents to see that they were worn. 4. In case of any hesitancy on the part of the parents to attend to the matter, he would free himself from responsibility by pointing out some of the dangers of delay: 1. The child may be permanently cross-eyed. 2. He may be partially blind. 3. An operation may be needed in after years. 4. The operation, although it may straighten the eye, will not cure the blindness.

HEREDITARY OPTIC ATROPHY. C. S. Hawkes.—The writer reports two cases in which optic atrophy seemed to follow in the female line, but affected only the males. Both are followed for four generations; in the first, the female had five children, all males but one, of two of whom the history is not known; the other two males became blind at the age of 30. The female child was not affected, married, and has nine children, five of whom are females and unaffected; three are unmarried, and one is married and has three children, the oldest 19, none as yet affected. The two males became blind at the ages of 15 and 48, respectively; one, at present 28 years of age, is not blind. One female married and has two male and three female children; both the males and one female have become blind. The second family history is even more striking in some respects. A married B, who is said to have become blind. They had three children, two males, both blind, and one girl, who married and had five children, four males, all blind, and one female, not affected, who, in turn, had two children, both males, and both blind. The heredity in these cases is rather striking as showing the transmission of the defect through the female line, but involving males almost exclusively. —Australasian Medical Gazette.

If Dr. John P. Brimhall, secretary of the Minnesota State Board of Medical Examiners, carries out the plans of the board, there will soon be tested in the Minneapolis police court the right of anyone to administer electrical treatment for disease without first having a physician's license. A case recently came up in the court where the director of one of the local medical "institutes" which cures for so much a month, was arrested for practicing medicine without a license, and was released by the court because the complaint specified the "use of drugs and medicines," while the accused was able to show that he used electricity only in his method of treating. There was no attempt made to show that the practitioner had a license, and in fact he admitted that he had none; but because of the specifications of the complaint the state was unable to make a case. It is now proposed to make another arrest in a similar case upon a complaint specifying treatment by the use of electricity without first getting a medical license. This would settle once and for all the question whether the administering of electric treatment really constitutes the practice of

medicine under the statute. Assistant County Attorney Hutchinson believes that it does.

Retinitis Albuminurica.—The conclusions of Alter's paper are, in substance, as follows: 1. Retinitis albuminurica indicates a highly toxic condition of the blood, which, in chronic kidney diseases, will prove fatal within one, or at most, two years. 2. The eye symptoms in such cases are always the first demonstrable lesion of chronic kidney disease; particularly is this true of the shrunken kidney. 3. Retinitis from Bright's disease assumes two forms—exudative and generative. In the first, occurring with acute nephritis, recovery with serviceable vision is possible. In the second, connected with chronic nephritis, recovery is impossible. 4. Retinitis occurring in pregnancy gives evidence of a toxic condition of the blood, which endangers the life of both mother and child, and unless remedies have an inhibitive effect, abortion is justifiable, especially when retinitis occurs in the early stages of pregnancy, or if previous pregnancy has already left its imprint on the retina of the optic nerve. 5. The appearance of the lesion in albuminurica so vividly described first by Liebreich does not agree with the ophthalmoscopic picture in the majority of cases. Probably not more than one-half agree with his description. The paper concludes with a plea for the more general use of the ophthalmoscope by the practitioner.

As an evidence of what the laity consider to be the value of an eye, we noticed that Charles H. Burroughs, of Chicago, has brought suit for twenty-five thousand dollars against the city, the People's Gas Light and Coal Co., and the Chicago Edison Co., for alleged neglect.

The Edison Company and the gas light company had pipes which extend into Burrough's building, and he declares that they leaked, allowing gas and noxious vapors to escape into his house, so that the explosion which occurred was very violent and injured him severely, causing a probable entire loss of his sight. Neglect also is charged against the city in inspection.

We do not question the validity of Mr. Burrough's claim. Eyesight certainly is worth twenty-five thousand dollars, but it should be remembered that people hardly ever place this value upon it, when it is saved for them by an oculist. A bill, for instance, of twenty-five

thousand dollars for preserving vision by a skillful operation even upon the eyes of a millionaire, would be regarded by the laity as little less than robbery, and the bill, undoubtedly, would not be paid, except under pressure of a lawsuit, and even then no jury in Christendom would allow this amount in a verdict.

HEADACHE DUE TO EYE-STRAIN.—Dr. E. W. Stevens, of the Colorado Medical Society, said that the area affected by disorders of the eye may be defined by a line starting in the region of the nose and following the lower margin of the bony orbit; thence running back from the orbital process of the frontal bone to the upper part of the inserion of the ear, and then dipping to form a curved line ending below the occipital protuberance. The area thus bounded may be further subdivided as follows: The fronto-nasal area, while the pain is said to be an aching over the middle of the forehead to the left or right of the middle line over the supra-orbital notch. The area becomes tender in affections of the substance of the cornea, the anterior chamber of the eye, the upper part of the nose and the upper incisor teeth. The midorbital area, where the pain is at the back of the eye "over the front of the hair." This is usually due to refractive error. Contrary to most statements on the headaches of hyperopia and hyperopic astigmatism, he finds that they belong to the morning headaches. Headaches made worse by new work, or those that disappear under the use of atropin are almost always due to eye-strain.

The Medical Record says: The law is probably the most profitable of the so-called learned professions. The incomes of the foremost advocates and of attorneys in lucrative practice for the most part overshadow the yearly earnings of the best known physicians and surgeons, and to a still greater extent those of our spiritual advisers. When, however, the average incomes of these classes are considered in the United Kingdom, the clergyman is at the top, the lawyer second, and the doctor last; in the United States the lawyer or doctor gets a larger share of the "loaves and fishes," and the minister has to be content with the crumbs. The average income of a physician in large cities in the United States may be placed at \$2,000 yearly, in the smaller towns \$1,500, and in the rural districts \$1,200, and in the country about \$800. As regards living expenses, both the lawyer

and minister have an advantage over their professional brother; for example, office accommodation suitable to a physician is always very dear. The first few years of medical practice are years of arduous effort, full of disillusionment and disappointment. The late Sir Andrew Clarke told Dr. Osler: "From the vantage ground of more than 40 years of hard work, he could say that he had striven ten years for bread, ten years for bread and butter, and 20 years for cake and ale." The average incomes for physicians in America are yearly becoming less. This is due to keener competition, hospital and dispensary abuse, and the lamentable increase of quackery. The supply of medical men is greater than the demand. The most potent remedy for this evil is a uniform high standard of medical education in every state.

Miss L. Blanche Fearing, a well-known lawyer and literary woman of Chicago, who died in Eureka Springs, Ark., lately, furnishes a striking illustration of one's chances for a successful professional career though beset by serious disadvantages.

Miss Fearing while a child was the victim of an accident that resulted in the loss of her eye-sight, but she had the ambition to become a learned and useful woman, and bent her energies toward securing an education in spite of her misfortune. The few months of schooling which she received in the public schools of Davenport, Iowa, prior to being deprived of her sight formed a groundwork for her future studies. As early as her eighth year the girl gave evidence of her exceptional qualities of mind. One day her mother read a little poem from a newspaper and remarked that it was written by a 14-year-old girl.

"I can do that," was little Miss Fearing's assuring reply, and true to her word, she had composed the lines of "Happy Children" before the close of the day. From that time on there was a marked development in her literary powers, and in the course of time she attracted the favorable attention and comment of John Greenleaf Whittier, Oliver Wendell Holmes and others. The first volume from her pen was "The Sleeping World," and it attracted no little attention. More pretentious, however, was "Roberta," a novel; "The Coty by the Lake," a long poem, and "The Isle of Shoals," an idyl.

Although the literary field had a strong fascination for Miss Fearing, her best efforts were given to the law. Her father, though not

a lawyer, was apt in discerning the technical points in law, and this faculty seemed to have been handed down to his daughter. To prepare herself for legal training Miss Fearing spent four years in Iowa College, at Vinton, Iowa, and later took the Chautauquan course.

Mrs. Fearing and her daughters removed to this city, and Miss Blanche entered the Northwestern University Law School. She completed the course in the prescribed time and won a prize for scholarship in a class of fifty-four students. But, although the young woman applied herself most diligently, her education was not attained through her own efforts alone. During all these years her mother had been reading to her day and night, that the hopes of the young woman might be realized. While Miss Fearing was taking her course in law the venerable woman passed over the very same ground by reading every word from the textbooks to her daughter. Judge Booth, who was dean of the law school during the time that Miss Fearing was studying there, was a warm admirer of the ambitious woman and watched her development in the profession with great interest. When she had completed her studies she opened an office in the Journal Building and had several years of practice.

For three years her health had been failing, and it was with the hope of getting permanent benefit that she went to Eureka Springs in company with her mother about June 1st. Miss Fearing had a complication of diseases, and, although it was believed that she was improving, her condition was really becoming worse. The body was brought to her late home, 430 Chicago avenue.

Miss Fearing counted among her best friends Miss Elizabeth Harrison of Davenport, with whom she remained for days at a time while a little girl receiving instruction. Mrs. Anna R. White, who formerly published a magazine in Chicago, took a deep interest in the young woman, and in addition to publishing her productions gave her every encouragement.

The Abortive Treatment of Suppuration of the Eyeball. In the treatment of suppuration of the eyeball from various causes, Snell, (*The Lancet*, March 31, 1900, p. 925), after the administration of ether, divides the cornea with a cataract-knife or with Beer's knife, unless it is already destroyed. He then removes the remains of the cornea up to the sclera with scissors. The remaining contents of the globe of the eye are extracted with forceps, and the interior of the globe is

cleansed with Mules' scoop, or cotton-wool and forceps may be employed to wipe out the contents. Finally, sublimate solution is freely syringed into the cavity of the eye until all of the contents have been removed or washed away, and only the bared sclerotic remains. Gauze is lightly packed into the eyeball and a bandage is applied. The dressings are changed on the night after the operation, and during the next few days the eye is syringed twice a day and the gauze re-applied.

Dr. A. R. Baker presented several specimens which had been removed from the vitreous humor with the electromagnet, after being located by radiographs. The photographs showed distinctly the presence of the foreign bodies that had been located by needles placed at right angles in front of and alongside of the eye. In one case, a very small piece of steel had penetrated the cornea, iris and lens, had been located by means of the radiograph, and successfully removed, with the preservation of good, useful vision. The author expressed the opinion that there is danger in using the strong Haab magnet in all cases of suspected foreign bodies in the vitreous for diagnostic purposes. The safer way is first to take a radiograph, then make a counter-opening through the sclerotic and remove with the magnet, and not attempt removal through the original wound.

Physician Entitled to Have Office Heated. A physician with an office in his residence, contracted for a furnace to be put in to heat his house. The stipulation was that it would heat the lower rooms at 70 degrees Fahrenheit in zero weather, and the second floor 65 degrees. However, under the best of usage and attention, the furnace furnished not only lacked the capacity to produce heat sufficient to make the house comfortable, but left the temperature in the office so low that it was impossible for the physician to treat his patients in that part of the house, and the office was of but little use to him during the winter season. The evidence showed that the rental value of this office was \$10. Under such circumstances, and as it holds that it was within the scope of the agreement that the office was to be heated by the furnace, the appellate division, fourth department, of the Supreme Court of New York holds, *Russell vs. Corning Manufacturing Company*, that the damages arising from this failure were fairly chargeable to the furnisher of the furnace.—*Journ. Amer. Med. Asso.*

Milton's Blindness Resulted from Glaucoma. According to the West London Medical Journal, Milton was induced by a friend to write out in full the details of his case in order that the notes might be sent to a Parisian oculist named Trevenot, for his judgment and advice, and the following is an abridged account of Milton's communication: "It is now, I think, about ten years since I first perceived my sight to grow weak and dim. When I used to sit down to read as usual in the mornings, my eyes gave me considerable pain. If I looked at a candle, it appeared surrounded by an iris. In a little time a darkness, covering the left side of the left eye (which was partially clouded some years before the other) intercepted the view of all things in that direction. Objects, also, in the front seemed to dwindle in size whenever I closed my right eye. Before I wholly lost my sight, as soon as I lay down in bed and turned on either side, brilliant flashes of light used to issue from my closed eyes; and afterwards, on the gradual failure of my powers of vision, colors, proportionately dim and faint, seemed to rush out with a degree of vehemence and a kind of noise. These have now faded into uniform blackness, such as ensues on the extinction of a candle. The constant darkness, however, in which I live day and night, inclines more to a whitish than a blackish tinge, and the eyes turning round admit, as through a narrow chink, a very small portion of light.—Philadelphia Med. Journal.

You can find all types amongst the Queen's medical men. Amongst them should be enumerated George Lawson, who lives in Harley Street. He is the Queen's own oculist, and therefore a **very** important man in the community. Mr. Lawson is bearded, and bears a solemn look, and, if he would but admit it, the thing he glories in most of all is that he is a self-made man, who struggled from the lowest position to the topmost with the help of no one but himself. When he was a young medico he served in the Crimean war, and he will tell you stories of what the doctors had to do and did in the campaign with a "wars were wars in those days," sort of air. He will tell you how he was there when Lord Raglan was given a piece of the medical staff's mind by its chief, and how there were threats of court-martials, and how Lord Raglan admitted that the doctors were right, and that the condition of affairs in his camp was far worse than he had imagined. Mr. Lawson was one of the earliest living specimens of the genus McCormac and Treves.

At the Ophthalmological Society of the United Kingdom, held May 14th, papers were read by W. H. Jessop on "Embolism of Both Central Arteries of the Retina"; by C. Wray on "The Development of Myopia"; by S. Snell on "Congenital Papilloma of the Conjunctiva." "Periarteritis of the Central Artery of the Retina"; by S. Stephenson on "A Case of Ophthalmitis Associated with Basal Meningitis," and by R. M. Gunn on "Visual Sensations."

Dr. Woolsey Hopkins, of this city, died on February 15th from pneumonia, at the age of thirty-two years. He was born in Alexandria, Va., and was graduated from the college of Physicians and Surgeons, New York, in the class of 1890. He was assistant surgeon to the Manhattan Eye and Ear Hospital, and was a member of the American Laryngological, Rhinological and Otological Society. A widow and two children survive him.—N. York Med. Record.

Tributes of respect were offered to the memory of the late Dr. Geo. E. Frothingham at the recent meeting of the Wayne County Medical Society, of Michigan. The speakers all dwelt upon his great nobility of character, his kindness of heart, and the straightforward, sterling integrity of the lamented physician. Several advocated doing something towards a lasting memorial for Dr. Frothingham, and the idea will probably be taken up later on. No business was transacted out of respect for the memory of the deceased.

Mr. H. J. Bhabba, Inspector General of Education in Mysore, Southern India, is superintending the commencement of the eye and ear tests of school children in the public schools of Southern India. The government has ordered the examination of all students of the Central College, which is the highest educational institution in the province. After this is done, statistics will be compiled on the reports of the examinations, after which a general order will undoubtedly be given that similar examinations shall be made in all of Southern India.

The conditions requiring enucleation of the eyeball are given by Lauder in the Bulletin of the Cleveland General Hospital as follows:

1. Intraocular malignant tumors.
2. The presence of a foreign body impossible to be removed.
3. Injury to the eye precluding pos-

sibility of recovery; such as rupture of eyeball from the result of a blow, though recovery may be possible even in some of these cases. 4. Where there is a condition of epiocular malignant tumors and also orbital tumors, which threaten life, but which cannot be removed without destroying the eye. 5. Cases of disease which cause intolerable pain and which are incurably blind. This condition is sometimes met with in irido-cyclitis, phthisis bulbi and in glaucoma absolutum. In this case operation should be performed only as a last resort after every other less radical operation has proved fruitless.

At the May meeting of the Society of Ophthalmologists and Otologists, of Washington, D. C., the following officers were elected for the ensuing year:

Dr. E. Oliver Belt, President.

Dr. H. S. Dye, Vice-President.

Dr. W. N. Suter, Secretary and Treasurer.

The officers and Dr. S. M. Burnett form the Executive Committee.

This Society was organized in 1893 and is in quite a flourishing condition. It has 15 members and meets monthly from October until May inclusive.

A further attempt has been made to raise the standard of medical education by the General Medical Council of London. At the last meeting Sir John Batty Fulse presented a report by the Education Committee on the question of raising the standard of preliminary examination in general education. Detailed suggestions were made as the result of reports received from experts throughout the United Kingdom. It was also proposed that an age limit should be fixed, below which an applicant could not be registered as a medical or dental student. The committee proposed that this limit should be fifteen. At some future time, when the standard of preliminary education had been raised, it might be advisable to raise the limit to seventeen. This would have the effect of inducing those who intend to enter on the study of medicine, to spend a longer time over ordinary school subjects, thereby better fitting them for the more stringent examinations it was proposed to require.

At the Ophthalmological Society of London, Mr. Jessop described a case of occlusion of both central arteries of the retina in a woman

aged 35, who had been married nine years, and had no living children. She had had a miscarriage soon after marriage, and eight months ago she was delivered of a child at the ninth month, which lived only a few hours. On Oct. 24, 1899, while in apparently good health, on awakening, she found that she was blind in the right eye. Signs of embolism of the central artery of the retina were found with the ophthalmoscope. On December 20, she suddenly lost vision in the left eye, and the signs of embolism were again found. Now both discs are atrophied and the retinal arteries are reduced to mere threads, and in places there is a white thickened condition of the sheath-periarteritis. The vision of the right eye has improved to be 6-36, but with the left there is perception of light only. Mercury has been given. No source of the emboli could be suggested, but the condition is probably of syphilitic origin.

Congenital Word-Blindness. James Hinshelwood. Remarking first that he has already published four different papers dealing with distinct varieties of letter and word-blindness, Hinshelwood describes another variety, showing that the subject is not yet exhausted. He reports four cases of what he calls congenital word-blindness, a defect of the brain which renders it almost impossible for the individual to form visual memories of words and letters. The first and second cases of this condition were rather marked, but the recognition of figures was in both, especially the second, much better than for words. In the last two cases there was no difficulty in figures, which he thinks indicates that these memories are registered in different portions of the cerebral cortex. He believes that these cases are by no means as rare as the absence of recorded ones would lead us to believe. The fact is they are not recognized and the children are whipped for stupidity, when the trouble is a congenital and only partially remediable defect.—The Lancet, May 26th.

Diagnosis and Prognosis in One Hundred Cases of Double Optic Neuritis with Headache. R. T. Williamson and Edward Roberts. The authors call attention to the class of cases in which double optic neuritis occurs, sometimes with vomiting and other symptoms, but which afterward clear up without any apparent cause. Sometimes the general symptoms disappear and leave blindness. He suggests the probability of a tumor becoming latent, or sometimes distention of the ventricles

of the brain as a cause of this condition. In cases of double optic neuritis we should watch the urine and cardio-vascular system for nephritis, look out for the lead poisoning, chlorosis, etc., and the ear should be examined for otitis. If all these can be excluded, the probable diagnosis of brain tumor is justifiable, but it may sometimes, as in cases mentioned, not be supported by the outcome.—London Lancet.

Fungous Disease of the Cornea.

Leber, Uhthoff, Fuchs, and others, have described rare cases of infection of the human cornea with organisms belonging to the moulds. Recently Wicherkiewicz recorded an instance of this kind: A servant girl dropped a piece of potato, covered with dirt, into the eye; three weeks later there had developed a yellowish-white mass on the central portion of the cornea, the marginal vessels being congested, and the anterior chamber containing pus. The process appeared slow and chronic in its course, painless, and the mass was elevated and firm. Examination of a piece of the mass showed that it consisted of a dense network of fungous threads, and cultures gave rise to pure growths of the mould-penicillium glaucum. Treatment succeeded in checking the process, but not without permanent corneal opacity, greatly diminishing the vision of the affected eye.

Probably few patients have carried parsimony to the height pursued by a certain baronet, Sir William Smyth, who, although immensely rich, was never happier than when trying to evade doctor's bills. For instance, he once made a bargain with a great oculist to couch both his eyes, agreeing to pay 60 guineas if his sight was at all restored to him. The operation was made and proved so successful that he was enabled to read without glasses.

No sooner, however, was this state of affairs reached, than the miserly baronet began to grieve at the thought of paying the promised fee, and to sustain the pretense he submitted to wearing the bandages for some weeks over the usual period. When the time expired he still contended that he had only the faintest glimmering of light, with the result that the badgered physician compromised the business by accepting 20 guineas instead of 60.

Cases of this kind are by no means rare in the experience of medical practitioners. A doctor attended a patient for influenza of rather a bad type; and when the cure was completed sent in his bill at the

ordinary rates. It was, however, returned to him with a note from his late patient hinting that, as the influenza was at the time in the nature of an epidemic, and the doctor had doubtless reaped considerable benefit from it, he ought to make a considerable reduction in his bill in view thereof. However, the physician did not fall in with this eccentric and stingy proposition, and eventually the bill was paid as it stood, though not without many more protests from the payer.

Another patient, who prided himself on his medical knowledge, was in the habit of making suggestions to the doctor who attended him during illness, which suggestions the doctor would sometimes good-naturedly adopt, more for the sake of gratifying the patient than for any other reason. Judge of the medico's astonishment, however, when the amateur Hippocrates actually refused to pay more than half the bill on the grounds that at least "50 per cent of the cure had been due to his unaided suggestions in the treatment."

Audacity and penuriousness could hardly have gone further than this, and under the circumstances it is not surprising that the physician not only insisted on full payment, but refused to attend the gentleman further.

Specialists can tell many tales of parsimony in the people who consult them. An eminent lung physician once received a visit from a Sussex farmer, whose trouble proved to be merely imaginary, and whose mind was soon set at rest. On his departure he offered the specialist five shillings, and on the latter pointing out that his fee was two guineas, the worthy agriculturist scratched his head and said that he considered such a sum far too much for "telling a man he had nothing the matter with him."

Another gentleman of similar tendencies, who consulted an ear specialist, was thunderstricken when asked for a fee of one guinea, as he averred that scarcely three minutes had been consumed in the consultation. The doctor pointed out that it had taken him over thirty years to obtain the experience which condensed a consultation into three minutes, but the obstinate consultant refused to take this view, and eventually prevailed upon the physician to accept half the sum named. It may be added that this parsimonious person was in receipt of an income that ran into many thousands per annum.—Abstracted from the New York Herald by the Milwaukee Medical Journal.

High Myopia. Kollock concludes that operation is justifiable in most cases of 12D. and over, in which degenerative changes have not caused floating bodies in the vitreous, retinochoroiditis, hemorrhage and beginning retinal detachment. The existence of these changes in a passive state should not be a contraindication in all cases. The best results will be obtained in children, young adults and in those whose parts are in healthy condition. In all cases, discission should be performed a number of times in order that the absorption of the lens may be given a fair chance, which abates the dangers of retinal hemorrhages and detachment does not seriously increase that of infection. Detachment and retinal hemorrhage are less apt to occur if the condition change gradually. The results in the way of increase of visual acuity and field far more than counterbalance the danger of operation when proper precautions are used.—*Carolina Medical Journal of May*, abstracted by the *Journ. Amer. Med. Asso.*

The following is a brief extract from the March number of the *Klinische Monatsblätter für Augenheilkunde*:

Paris.—In France ophthalmology has noted an important advancement; the "Assistance Publique" in Paris has determined upon the placing of ophthalmological chief physicians in the hospitals, which conforms to the head of surgical, medical, and gynecological divisions. The first competitive examination will take place May 28th. It is an important event to the French ophthalmologists, for there are till now no "Professeurs Aggreges" in the French Universities, and as only six universities have professors, the prospect of a permanent position and a title for French ophthalmology has surely advanced; the regular professors of the medical science of the eye have arisen from general surgery. It is to be hoped that in the rest of France the same conditions are to be met.

Visual Perimetry.

Dr. Dudley S. Reynolds, Louisville, read a paper on this subject, and said that it is important to measure the field of vision, as, if it is narrow, a person is in danger. He exhibited a perimeter made on an ordinary piece of cardboard sheeting, by the use of which spinal injury could be found, and tobacco and alcoholic peripheral narrowing of the field of vision and color imperception; while there is a central

lesion rather than a peripheral if color and not visual trouble is in the retina. In toxic amblyopia scotoma begins on the nasal side; if of central origin on the temporal side. Toxic amblyopia may be present and not discovered until a map of the field of vision is made. It is rarely absent in habitual users of tobacco.

New Title for Refractionists.

The question of a proper designation for practical refractionists has been vigorously discussed from time to time, but no definite conclusion has been reached on the matter, though it cannot be gainsaid that the word "optician" is a misnomer, meaning, as it does, one who makes or sells optical glasses and instruments. The solution of the question seemed to be furnished by the Century and Standard dictionaries, which give the word "optician," defining it as "a person skilled or engaged in the study of optics; optics being that branch of physical science which treats of the properties of light, lenses and mirrors, of the construction of the eye and the laws of vision."

In regard to the term "optician," however, there is one important consideration which may become a boon to the qualified refractionist and serve to some extent at least to purify and legitimize the profession. The word "optician" was coined by Charles F. Prentice, M. E., the eminent New York optician, and is not general property. It was copyrighted in due legal form, as recorded by the librarian of Congress, in 1886, and registered in the United States Patent Office in 1889 as trade-mark No. 16,689. The fact that this word "optician" has since been accorded its proper place in the English language, or that persons are practicing as opticians, does not, however, entitle anyone to apply the word "optician" to his individual commercial use without previous sanction. In view of this, the trade will be pleased to learn that the American Optician Co., 177-179 Broadway, New York, has been organized for the purpose of vigorously protecting the term "optician" and licensing its use to qualified refractionists of known professional attainments. This company has secured exclusive control of the copyrighted term from Mr. Prentice and will make contracts for its use with opticians of standing in the profession. We understand that itinerants and bogus refractionists of all kinds will be debarred from the privilege, so that the word will, in a measure, give a professional status to the holder.—The Key Stone. April, 1900.

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THE OPHTHALMIC RECORD

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NO. 10. NEW SERIES

ORIGINAL ARTICLES.

TWO CASES OF NYSTAGMUS.

BY ALEXANDER DUANE, M. D.

NEW YORK.

The following cases of nystagmus are reported as presenting features that seem of special interest:

CASE 1. *Albinism; Hyperopia and Astigmatism; Horizontal Nystagmus; Inability to Read with Page held in ordinary way.*

Henry B., aged 26. Marked Albino. Fundus at periphery entirely destitute of pigment, giving typical picture of an albinotic background. Intermediate zone and central areas normally pigmented, forming red patches which in places are separated by a sharp outline from the adjoining white fundus.

Refraction, determined by skiascopy under homatropine ;

R. + 8.00 \odot + 4.00 cyl. ax. 90 $^{\circ}$.

L. + 9.00 \odot + 5.00 cyl. ax. 90 $^{\circ}$.

V. with sphericals alone $\cdot \frac{20}{200}$; somewhat better when the cylinders shown by skiascopy are added.

It is with great difficulty that the patient reads with any glass; and *when he reads he turns the printed page on its side* so that the lines of print run up and down instead of sideways.

The interesting feature of this case is the way in which the patient

had to turn the book in order to read it. This symptom, which is not referred to in most of the works on nystagmus, is described, and the reason for it given by Soelberg Wells* in these words: "Patients * * * hold the print in a slanting or vertical, instead of a horizontal position, so that the lines run vertically instead of horizontally. The reason for this is easily intelligible, for they can then see the individual lines chiefly by the aid of the superior or inferior recti, and the circles of diffusion caused by the oscillation of the eye will then extend the letters vertically instead of horizontally; the length of the letters will consequently be considerably more increased than their breadth, which is less confusing to the sight, as their lateral separation will be preserved. Whereas, when they are extended horizontally, one letter runs into the other, its outline is blurred and confused, and the power of distinguishing them much impaired."

The symptom has a physiological interest, since it shows that in nystagmus of infantile origin the oscillation of the eyes really does produce upon the patient the confusing effect of an apparent movement of external objects, although one affected with nystagmus of this sort never perceives the movement itself. In nystagmus acquired later in life, the oscillation of the eyes not only causes confusion of sight, but may also produce an apparent vibratory movement of external objects, which often gives rise to vertigo.

This was well illustrated in the following case:

CASE 2. Hyperopia and Astigmatism. Varying Strabismus, Convergence (Convergence-Excess) of Left Eye with moderate Amblyopia. Recently acquired Vertical Nystagmus of Left Eye, with Perception of Movement by Patient. Relief through Correction of Astigmatism.

Mrs. A. B., aged 27, came to my office, May 11, 1897. Left eye has turned since childhood. Ten years ago (before her marriage) she had some affection of the eyes which caused blurring of sight in the evening, and for which she took medicine and wore dark glasses.

Two months ago, ten days after an uneventful confinement, began to be troubled with asthenopia dolens, diminution in sight, and the appearance of colored rings about a flame. For the last two or three weeks left eye has been observed to dance, and patient herself has noticed that objects jump up and down when seen with this eye (also, according to her, to a slight extent when seen with the right eye).

* Treatise on Diseases of the Eye, 4th American Edition (1883). p. 691.

V. R. $\frac{1.5}{2.0}$; wi. + 2.00 \odot + 2.50 cyl. ax. 80 $^{\circ}$ $\frac{1.5}{4.0}$.

V. L. wi. + 1.50 \odot + 3.00 cyl. ax. 80 $^{\circ}$ $\frac{1.5}{1.0}$.

(examination under homatropine). Skiascopy shows marked meridional aberration, astigmatism in the peripheral area of the pupil being 4 D, while that found objectively in the central area agrees with that found by the subjective test. Marked corneal astigmatism with the rule.

Varying strabismus convergens (left), left eye turning more or less spasmodically inward when right eye fixes. Deviation sometimes 3 lines, sometimes almost nil. *At times, especially when trying to fix with left eye or to turn left eye outward (particularly when right eye is covered), rapid vertical nystagmus of left eye.* No nystagmus of right eye. No limitation of movements of eyes in any direction obvious upon cursory examination.

Interior normal.

Prescribed—

R. + 1.50 + 2.50 cyl. ax. 95 $^{\circ}$.

L. + 1.50 + 3.00 cyl. ax. 80 $^{\circ}$.

For two years after this the patient had no trouble with the eyes, and evidently very little nystagmus, as she was annoyed but slightly by any dancing of objects looked at.

July 17, 1899—For last two months pain in eyes, especially after using them for near work, and transient dancing of objects, sometimes associated with vertigo and nausea. This dancing occurs *when she uses the left eye for fixation* (which she can do at will), and *ceases when she turns her head to the right*, so as to look to the left sideways through her glasses.

V. R. with her own glass $\frac{1.5}{3.0}$; with + 1.50 + 4.00 cyl. 90 $^{\circ}$ $\frac{1.5}{3.0}$.

V. L. with her old glass $\frac{1.5}{1.0}$ and with this old glass she has nystagmus.

With + 1.50 + 4.00 cyl. 90 $^{\circ}$ $\frac{1.5}{6.0}$ and nystagmus is checked (several tests).

Skiascopy confirms the subjective test. Interior normal. The nystagmus is occasional only; especially marked when the eyes are directed up or up and to the left.

Strabismus convergens of 3 lines; alternating, although right eye is the one mainly used for fixation.

No diplopia obtainable with prisms, nor by any test.

Prescribed + 1.50 + 4.00 cyl. ax. 90 $^{\circ}$ each, and recommended

tenotomy left internus. She, however, refused operative interference.

From subsequent reports it appears that she was not troubled by any return of the nystagmus.

Unilateral nystagmus is a rare condition. When present it is usually vertical as in the case just cited, but occasionally is horizontal. A transition between unilateral nystagmus and the ordinary bilateral form in which the movements are equal and parallel for the two eyes, is found in the very rare cases in which the movement is of one kind in one eye and of a different kind in the other.* Other cases occur in which the movements of the two eyes, while similar in character, are not equal in degree. These transition forms indicate, what other considerations confirm, that unilateral nystagmus is not essentially different from the bilateral form, but constitutes simply a variety of it. Both kinds of nystagmus, that is, consist in a disturbance of the centers governing the associated parallel movements of the eyes. The effect of this disturbance is that, instead of there being a simultaneous and equal discharge of energy from all these centers, as occurs in the binocular fixation of normal eyes, the center for one class of movements discharges its stimuli more energetically and more rapidly than does the center governing the reverse movement. The result is a rapid forcible movement of the eye in one direction immediately succeeded by a slower movement in the direction opposite. In ordinary bilateral nystagmus this alternating discharge is transmitted to both eyes alike. In unilateral nystagmus, owing to some cause, perhaps to an interruption in the conducting paths to the lower centers (nerve nuclei), it is transmitted to one eye alone.

Apart from the unilateral character of the nystagmus, the interesting feature about Case 2 is the *cessation of the nystagmus upon the correction of the astigmatism*, its reappearance when the astigmatism increased to such a degree that the glasses had become insufficient, and its disappearance again when the astigmatism was once more fully corrected.

* A. Graefe. *Graefe-Saemisch, Handb. d. ges. Augenh.*, II, XI. p. 221: W. A. Frost, Trans. Oph. Soc Un. Kingdom, XIV. 245.

THE INFLUENCE OF ABDUCTING AND ADDUCTING PRISMS ON THE ESTIMATING OF DISTANCE.

BY J. A. LIPPINCOTT, M. D.

PITTSBURG, PA.

ILLUSTRATED.

I was much interested in the letter of Dr. Duane on "The Change in the Apparent Distance of Objects Produced by Prisms," published in the June number of the RECORD; and the purpose of this brief paper is to contribute toward the clearing up of what seems to be a doubtful question.

In considering this subject it is necessary to bear in mind (1) that the estimating of distance is a mental process—a species of sub-conscious reasoning based on two classes of data, one class necessitating and the other not necessitating the existence of binocular single vision.

(2) That one of the most important factors concerned in this process consists, for those possessed of binocular vision,* in the varying convergence of the optic axes, and that the use of prisms, which admittedly influence convergence, must affect our conclusions.

(3) That the ability to measure distance from the amount of convergence is limited to comparatively short ranges and diminishes in proportion to the distance of the object regarded. It is obvious that the difference in the convergence angles for objects respectively 100 and 101 feet away is trifling as compared with the difference for objects respectively one and two feet away. The range within which the estimate of distance is affected by prisms must vary in different individuals. In my own case the limit is about twenty-five feet.

(4) That while unocular data, viz., data furnished by each eye acting independently of the other, form a basis for the measurement of the distances of all visible objects, they constitute the principal, if

not the only, means of estimating distance beyond the range within which convergence is operative for this purpose. They consist, first, of the size of the so-called retinal image relatively to the known or assumed size of the object, and secondly, of the sharpness of the image, depending usually on the condition of the atmosphere or other intervening media: e. g., Pike's Peak seems very near when seen from a window in the dining room of the Palace Hotel in Denver.

Looking now at the facts observed, the effect of adducting prisms (bases outward) on myself is to make objects within a distance of about twenty-five feet look nearer, whereas abducting prisms (bases inward) make them appear more remote. The nearer the object the more decided the influence of the prisms. At arms' length the result is to me so positive that it is difficult to conceive how a different conclusion could be reached by any one endowed with binocular single vision.

I am perfectly aware, however, that my personal experience is not to be accepted as conclusive, especially when opposed, as it apparently is, to that of so able an observer as Dr. Duane.* I would, therefore, invite the attention of those who may be interested in this subject to the following considerations:

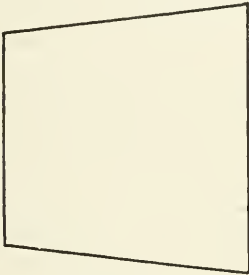
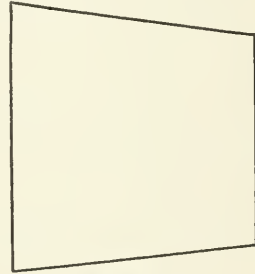
It is well known that the effect of a prism is greatly intensified by looking obliquely through it; e. g., a prism of three degrees, base to right or left, may be made to displace a vertical line as much as a prism of ten or twelve degrees, if the former be turned on its vertical axis, thus bringing the apex closer to the eye than the base, or vice versa; and in looking through a prism with one eye, the other being closed, at a long vertical line or an opposite wall (or the side of a door frame), the latter appears concave toward the side to which the apex of the prism points, because the oblique rays from the top and bottom are more deflected than the rays coming directly from the center of the line.

Now, if a prism (say of three or four degrees) be held base outward before the right eye, both eyes being open, while a flat card about 12 inches square is held at arms' length with its surface parallel to the anterior plane of the face, and if the prism be rotated as above suggested so that while the rays from the right side enter the prism perpendicularly, or nearly so, those from the left side pass through it

* Inasmuch as I am at present far from my library I cannot refer to the articles of Dr. White, Dr. Allen, and others alluded to by Dr. Duane.

obliquely,* the right side of the card will remain stationary, whereas the left side will appear to approach the observer somewhat like a gate swinging on its hinges—somewhat, but not exactly like a gate, because, owing to the disproportionate deflection of the peripheric rays and the resulting increased convergence, the left edge approaches so rapidly that the card assumes a cylindrically concave appearance, with the axis vertical.

Not only so, but the left side of the card appears narrower in accordance with the law that, the size of the retinal image remaining constant, the nearer the object is presumed to be, the smaller it appears. As a result the card takes a rhomboidal form, as shown in Fig. 1.

**FIG.1****FIG.2**

Similarly, if the prism be held base inward and rotated in the same way, causing the rays from the left side to strike it obliquely, this side will appear to recede from the observer and consequently seem wider, with the result shown in Fig. 2.

Assuming, then, the existence of binocular single vision, it is obvious, first, that the stronger the adducting prism (base outward), and the greater, therefore, the convergence necessary to overcome it, the nearer the object regarded appears; and, secondly, that the stronger the abducting prism (base inward), and the greater, therefore, the divergence* required to overcome it, the more remote the object appears. The only logical deduction possible seems to me to be that, given binocular single vision, prisms with bases outward diminish, whereas prisms with bases inward increase the apparent distance of objects.

* Rotate the prism so that its inner (nasal) edge shall be farther away from the face than its outer edge.

* The term "divergence" is used here in the sense of diminished or negative convergence.

What has preceded furnishes the key to the explanation of the peculiar form of binocular metamorphopsia always produced by abducting or adducting prisms, though not always noticed by the wearer. I allude to the concave appearance given to a plane surface like a wall by adducting prisms, and the convexity caused by abducting prisms.* In the former case the periphery of the binocular field appears nearer than the center because the convergence for the oblique rays coming from the periphery is greater than for those coming directly from the center, so that an apparent pit is formed in the wall. In the latter case the periphery appears more remote, and the center bulges, because, the prism bases being inward, the divergence for the peripheric rays is greater than that for the central rays.

It has already been stated that beyond a certain point the variations in convergence are too slight to form a basis for estimating distance. In point of fact, in my own case, prisms with bases either inward or outward make all objects beyond thirty or forty feet seem rather more remote than they really are. This, I think, arises partly from the indistinctness of the retinal images produced by the interposition of the more or less imperfectly transparent lenses, but perhaps chiefly from a blurring of the binocular image due to the greater or less degree of oscillation—the artificial nystagmus—evoked by the muscular strain required to overcome the prism, and the consequently less perfect blending of the two retinal images.

* These appearances are mentioned in *Graefe u. Saemisch* and explained as "stereoscopic phenomena" which they of course are.

ABSTRACTS

FROM RECENT OPHTHALMIC LITERATURE.

BY G. E. de SCHWEINITZ, M. D., and C. A. VEASEY, M. D.

The Comparative Value of Enucleation and the Operations Which May Replace it. In the discussion on this subject before the Thirteenth International Congress in Paris, Professor Pflueger of Bern (*Rapports de la Section d'Ophthalmologie*), Paris, 1900) came to the following conclusions:

Enucleation cannot be replaced in certain affections of the eye for the relief of which it is ordinarily employed and it is not even probable that it ever will be. The classical operation of enucleation (Bonnet-Ferral) may be readily and simply executed, but it does not yield a satisfactory stump. The double hollow shells of Snellen are useful and help the state of the conjunctiva, but do not greatly augment the mobility of the prothesis. To form a stump which will have a more active and ample mobility with or without augmentation of its volume, several procedures are in vogue: (1) Fixing the straight muscles to an intermediate part of the conjunctiva after the manner of Schmidt, or by following a simplification of this proceeding designed by Pflueger. By this operation the stump does not become more voluminous, but it is more prominent on account of the advancement of the muscles. The conjunctiva is more tense and acts by friction more intensely on the prothesis. (2) By inserting into the capsule of Tenon an artificial inorganic globe (Frost, Lang).

The cosmetic effect of simple evisceration is better than that of classical enucleation, and that of combined evisceration (Mules's operation) better than that afforded by the operative technique advocated by Schmidt and Pflueger and developed by the operation of Frost and Lang. Hollow spheres of silver merit at the present time the preference because the granulations enter into them and fill the cavity and solidly fix the aseptic body. The transformation of these granulations into connective tissue consolidates this fixation. (In this country silver balls have been abandoned. Operators of the largest experience believe that they are valueless on account of the argyria which they produce and the oxidization which they undergo. Bry-

ant's fenestrated aluminum spheres are condemned by Fox because they undergo disintegration. G. E. de S.)

Ablation of the cornea is superior in its cosmetic effect to that of a combined evisceration and sometimes permits the patient to do without a prothesis and very rarely to retain perception of light and color.

Optico-ciliary neurectomy in absolute glaucoma does not alter the aspect of the patient and excludes the necessity of a prothesis.

Not only the mutilation of the patient occasioned by enucleation, but also the dangers of lethal meningitis and of sympathetic ophthalmia have influenced some oculists to search for operations which may replace it. On this account evisceration was reintroduced by Alfred Graefe, who had seen lethal meningitis follow an enucleation for panophthalmitis. Meningitis after enucleation has nearly always taken place when the enucleation was performed for suppuration within the eyeball. Death from meningitis after evisceration of the bulb during panophthalmitis has been described up to the present time but twice. One cannot doubt that in eyes suffering from panophthalmitis enucleation disposes more to lethal meningitis than evisceration.

Enucleation cannot prevent all cases of sympathetic ophthalmia, but in theory it constitutes that operation which offers the best chance for the prevention of sympathetic disease, and practical experience confirms theoretical considerations.

Evisceration performed during the first three weeks after a perforating injury to the eye has a preventive value in this respect analogous to enucleation.

Sympathetic ophthalmitis which appears after enucleation generally possesses a benign character. It terminates very often in cure. Neurectomy possesses a relatively small preventive power. It may be utilized on those eyes which are menaced by sympathetic ophthalmitis.

Staphylotomies and abscissions of the cornea unfortunately have caused several cases of sympathetic ophthalmitis when the primary malady of the eye was not of such a character to dispose to this affection. It is for this reason that the English Committee does not recommend these operations. They are permissible if undertaken with proper and rigorous antiseptic precautions which should be prolonged until complete cicatrization of the wound.

Indications for Enucleation.—Enucleation is demanded in all cases of malignant tumor of the globe, except in those rare cases of tumors which grow at the limbus and on the conjunctiva; in cases of malignant tumors of the orbit; in cases of pronounced sympathetic ophthalmitis, and in cases of painful phthisis bulbi. Enucleation will also be indicated in cases of sympathetic irritation; grave traumas treated by conservative methods for at least three weeks; traumas complicated by foreign bodies lodged in the sclerotic, in the orbit or in the optic nerve after perforation of the sclerotic; in active panophthalmitis protracted five or six days or longer, in all cases of panophthalmitis where necrotic exfoliation of the sclerotic is to be feared. Enucleation will also be indicated in cases where the affected eye constitutes a specimen of great scientific interest.

Indications for Evisceration.—These are: recent panophthalmitis and the majority of cases of perforating wound and certain cases of staphyloma of the cornea. Combined evisceration will have to give place to simple evisceration in those cases where the loss of substance of the sclerotic will not longer permit the easy insertion and occlusion of the artificial globe, and in those cases where the interior aspect of the sclerotic creates a fear that there will be necrosis of this tissue.

Indications for Neurectomy.—These are absolute glaucoma and total leucoma of the cornea, even if they are slightly ectatic.

Indications for Abscission of the Cornea.—These are staphylomas of the cornea, especially if the staphylomas are bilateral, and particularly if one can preserve the sensation of light and color. Partial staphylomas with restricted base are well treated by this method.

The Pathogenesis of Quinine Amaurosis. A most interesting and thorough research made in the Laboratory of Ophthalmology of the Hotel Dieu has been published by Dr. A. Druault (*Recherches sur la pathogenie de l'amaurose quinine*, Paris, 1900). The author comes to the following conclusions:

1. Grave quinine intoxication is always accompanied by visual disturbances in the dog as in man.
2. These disturbances are due to a degeneration of the optic nerve and the cells of the ganglion layer of the retina. No other part of the optic pathway presents as decided alterations.
3. The primary lesion is in the nucleus of the cell where it is already considerable ten hours after the injection of the quinine.
4. All parts of the ganglion layer are not equally attacked. Cer-

tain parts are respected and particularly the middle of the central region. This degeneration of a territory determined by the ganglion layer is a good example of the localization of an intoxication in one part of a group of cells. It does not seem that there exists an analogous example of primary localization in one group of nerve fibres.

5. This fact is not explained by a condition of the circulation. It proves the direct toxic action of the quinine on the ganglion cells. (Quinine amaurosis has generally been considered as a simple consequence of the circulatory disturbance observed by the ophthalmoscope.)

6. The direct action of quinine on the ganglion cells is furthermore proved by another fact, namely, that the first anaemia (during one part of the first day) is less marked than the later anaemia (appearing some days afterwards). This last being the consequence only of the diminution in the quantity of the elements to be nourished, it would evidently be necessary that an anaemia sensibly equal or even greater should occur to bring about the death of the destroyed elements.

It is nevertheless possible that the vaso-motor constriction plays a feeble accessory role in the production of the degeneration of the ganglion cells.

8. Section of the cervical sympathetic does not appear to modify sensibly the retinal circulation. It has not any very pronounced influence on the retinal degeneration caused by quinine intoxication.

9. Quinine produces without doubt a spasm of the retinal vessels by a direct action on their walls or by an action on the peri-vascular vaso-motor plexus.

10. After optic neurotomy the retina degenerates less under the influence of quinine intoxication. This phenomenon cannot be explained by a modification of the circulation. It is due to the modifications which are produced in the ganglion cells in consequence of this action.

11. Light has a negative influence on the degeneration. In poisoned dogs the degeneration becomes evident as quickly in an eye hermetically sealed as in an eye exposed to the light.

12. The action of quinine on the visual apparatus varies much in different animals. In the cat it is the same as in the dog and in

the man. On the contrary, in the rabbit, the guinea pig and the mouse, it is entirely different and seems almost negative.

Paradoxical Action of Optic Neurotomy on Quinine Degeneration of the Multipolar Cells of the Retina. A. Druault (*Archiv, d'Ophthalmologie*, Juillet, 1900, page 390) has made an interesting observation on the effect of optic neurotomy on retinal degeneration produced by quinine, referred to in a previous paragraph and here elaborated.

If after having made a neurotomy on one of the eyes of a dog toxic doses of quinine are injected, degeneration of the multipolar cells of the retina manifest themselves less markedly according to the length of time the operator waits before making the quinine injection. When the intoxication is established twenty-four hours after the neurotomy there is no difference in the degeneration of the two retinas; all the multipolar cells have disappeared forty-eight hours after the injection. If the interval between the neurotomy and the quinine injection is two days, some multipolar cells on the neurotomized side persist. With an interval of four days the difference is very marked. Finally, if one permits an interval of six days to take place and kills the dog two days after the injection of the quinine, the retina on the neurotomized side seems to present only the alterations consecutive to the neurotomy, which therefore date back eight days. The multipolar cells have not diminished in number; they show only a certain degree of chromatolysis, while on the opposite side the destruction of the cells is practically complete. This relative conservation of the multipolar cells of the neurotomized eye cannot be attributed to the modifications which develop in the cells in consequence of the neurotomy. At the same time that the cells lose their normal state they also lose that sensibility, both special and distinct, which they are accustomed to present to quinine-intoxication.

The Toxic Amblyopias. Professor Uthoff (*Rapports de la Section d'Ophthalmologie*, Paris, 1900) made a masterly presentation of the toxic amblyopias before the Thirteenth International Congress of Medicine in Paris. It is impossible to do more than refer to a few of the conclusions of this admirable paper.

1. The *first group* of the intoxications comprises the cases of retrobulbar neuritis with central scotoma and intact peripheral visual field. The visual prognosis is favorable, the process remains partial

and attacks only a limited bundle of the nerve, namely, the papillo-macular bundle. The inflammatory symptoms in the papilla are generally slight. The atrophic discoloration of the nerve-head ordinarily remains limited to the temporal portion. Alterations in the retinal vessels are rare and usually one does not observe perineuritic changes with involvement of the peripheral parts of the optic nerve. In this group alcohol and tobacco hold the first place, then come sulphide of carbon, arsenic, iodoform and stramonium and hashish. It seems justifiable to associate with these, according to their clinical aspect, those affections the anatomical lesion of which is not yet determined, but which present themselves by symptoms analogous to those of the alcohol and tobacco amblyopia. Among these auto-intoxications saccharine diabetes takes the first place and the anatomical modifications observed are identical.

2. In the *second group* of poisons quinine takes the first rank; after this drug comes salicylic acid, filix mas and pomegranate. The pathological modifications consist principally in alterations of the vascular system and shrinking of the vessels, changes in their walls, stoppage of the circulation at the border of the optic nerve, and necrosis following ischaemia; also there is a direct action of the poison on the nervous substance. The process of the affection, the state of the visual field and the modifications of the fundus oculi present a totally different aspect from the preceding group. Multiple peripheral neuritis ordinarily does not seem to occur in these intoxications. In addition to the contraction of the vessels it is necessary to consider the direct action of the poison on the vessels and the optic nerve, because mere contraction of the vessels alone, as for example, under the influence of ergotine, is not sufficient to bring about destructive changes in the optic nerve.

3. The intoxication of lead holds a middle place, according to its clinical symptoms and anatomical lesions. One sees here inflammatory phenomena pronounced in the optic nerve which are variously located. Besides, there are frequently alterations in the vessels.

4. The nervous troubles determined by nitro-benzine and aniline, by the venom of serpents, etc., are not typical and for the most part have not been sufficiently studied to arrange them in any of these groups.

5. The auto-intoxications brought about by insufficient elim-

ination of poisons in consequence of certain affections of the organism, for example, the thyroid gland, the suprarenal capsules, the hypophysis, Addison's disease, etc., do not seem capable in general terms of determining alterations of the optic nerve with consecutive visual troubles.

6. One important question is to determine to what point an intoxication, whether it is exogenous or endogenous, is capable of producing a total simple atrophy of the optic nerve. Tabetic atrophy may be taken as the type of this alteration. It may be stated that primary simple atrophy of the fibres of the optic nerve reveals itself to the ophthalmoscope without inflammatory symptoms or neuritis. Observations which have been published of simple progressive atrophy of the optic nerve of tabetic origin with inflammatory phenomena in the first stages of the affection are not exact. It is certain that central scotoma without restriction of the visual field, so frequent in retrobulbar neuritis, almost never appears in simple tabetic atrophy. In a great number of patients examined by Uhthoff he has not certainly seen this in a single case.

One finds in the literature some observations where alcohol and tobacco amblyopia are supposed to have caused exclusively a simple atrophy in the region of the papillo-macular bundle, but in eleven observations which Uhthoff has made he has found, side by side with a simple atrophic process, interstitial neuritis localized in certain places. This fact indicates that it is not accurate to reduce the pathological process to the phenomena of simple atrophy. One can not admit *a priori* that a clinical symptomatology as typical as tobacco and alcohol amblyopia, so frequently accompanied by interstitial neuritis of the optic nerve, can in certain cases be determined by a totally different process. Neither can one forget that a primary interstitial inflammation at the end of a certain time can revert to the appearance of a simple atrophic degeneration of the optic nerve.

As is shown in the text of this paper, there are objections to be urged against the theory that toxic amblyopia is primarily an inflammation of the ganglion cells of the retina with simple ascending atrophy of the fibres of the optic nerve. Pronounced inflammatory modifications are not compatible with the picture of a simple ascending atrophy. On the other hand, it is not astonishing that one should

often observe in these cases a degeneration of the nervous fibres and of the layer of the ganglion cells in the region of the macula lutea, but these cells are attacked secondarily in the course of a descending degeneration. Such a fact is entirely in accord with the doctrine of the neuron and seems further substantiated by the recent work of Siegrist on this subject.

Uhthoff does not doubt that other intoxications may primarily be an affection of the ganglion cells of the retina, especially when the new experimental researches are taken into consideration, but up to this point the same etiology for tobacco-alcohol amblyopia has not been proven.

Upon the Extirpation of the Lachrymal Sac. (*Zeitschrift für Augenheilk.*, supplementary part, vol. iii., 1900). In extirpating the lachrymal sac Czermak advises that the external opening be made as small as possible, never more than 1 cm. in length, the incision extending down and out from a point corresponding to the juncture of the ligament with the orbital margin, and that the tarsal ligament be left undivided. Should the opening be larger or should the ligament be divided, there is not only annoying hemorrhage from the vessels lying beneath the latter, but great probability of some distortion of the lid. When the fascia overlying the sac is reached a small opening is made close to the orbital margin. The tarsal ligament is drawn upward with a tenaculum and the sac carefully divided from its attachments with the canaliculi and nasal duct by means of the point of small closed scissors. The sac is emptied by pressure before the operation is begun and it is unnecessary to fill it with any coagulable substance, the latter procedure preventing its withdrawal through the small opening without division of the ligament. The curette is employed to remove attached tissue and also for the removal of the membrane in the nasal duct.

To check hemorrhage cold is employed in the following manner: A number of small pieces of gauze are sterilized in a small receptacle and allowed to remain until the time of the operation. The receptacle is then surrounded by ice so that the contents become thoroughly chilled, and being removed, by forceps, one at a time, are packed into the wound by an assistant. Before closing the wound the canaliculi are cleansed with physiological salt solution but are never extirpated nor cauterized. The wound is closed with three sutures

inserted deeply, and if by chance the ligament has been cut, as in markedly adherent sacs, it must be carefully united. If a piece of mucous membrane or bone has to be removed on the second day the wound is packed with iodoform gauze and allowed to granulate. General anaesthesia is employed.

Concerning the Complications of Cataract Extraction. Hoor's (*Zeitschrift für Augenheilk.*, vol. iv., No. 1, 1900) first case was an attempted extraction of a ripe senile cataract in which the corneal section and iridectomy were made without mishap. Upon opening the capsule there appeared a small bleb of vitreous at the inner angle of the wound, which partially receded when the lid elevator was removed. To avoid loss of vitreous, delivery was attempted with a spoon when the lens slipped backward and was lost. Repeated efforts to remove it were ineffectual. The eye never became absolutely quiet and presented occasional attacks of severe pain and constant ciliary tenderness upon pressure. The pupil dilated only moderately under atropin and the iris was discolored. One month after the operation the edge of the lens was observed in the pupillary space and extracted with a loop through a downward section without loss of vitreous. The eye immediately became quiet and in three weeks the patient was discharged with vision of $\frac{6}{60}$. The writer believes that reclination is not even justifiable though the other eye has been destroyed by intraocular hemorrhage following extraction. (In a somewhat similar experience in which an attempt was made to remove a semi-luxated lens which slipped with the semi-fluid vitreous, and which could not be recovered—a sharp hemorrhage occurred five hours later and expelled the lens. The eye recovered, but only with light perception. The patient was a feeble dement, with chronic Bright's disease. G. E. de S.)

The second case was a 40-year-old patient with a ripe cataract. In attempting extraction, after making puncture and counter-puncture, before completing the section and immediately upon the escape of the aqueous, the eyeball collapsed and as the section progressed became so soft as to follow the knife in the shape of a cone. Instead of finishing the section in the usual manner, a scleral bridge, as in sclerotomy, was left above. The capsule was opened and as much of the remaining lens substance as possible was removed with Daviel's spoon, leaving a black pupil. Healing was uninterrupted and in

three weeks vision equaled $\frac{6}{18}$ and Sn. 5 D was read, which continued at time of examination, a year and a half later, with a deep anterior chamber. (One would think that an intraocular injection of physiological salt solution, as recommended by Knapp and Andrews, would have been of advantage in this case. G. E. de S.)

Black Boys for Doctors. African Youths Invited to Study Medicine and Surgery in Liverpool.

New York, July 11.—Albert L. Jones, the founder of the Liverpool School of Tropical Medicine, thinks it would be a good idea to educate young men from the British and other colonies in Africa in medicine and surgery so that their people may have the advantage of more scientific treatment. He bases his scheme on the idea that some of the young fellows who have been educated in the schools of Sierra Leona, Monrovia, and many other places, are bright enough to turn a five-years' course in medical training to excellent account. So Mr. Jones has made arrangements with one of the steamship companies to take young Africans to Liverpool at low rates, and the Liverpool University College, the Royal Southern Hospital, and the School of Tropical Medicine are all to have a part in the work of turning the young men into doctors and surgeons.

A circular has just been distributed along the west coast of Africa giving information about this fine opportunity for native Africans to enter one of the most useful professions. The native press in the towns along the west coast are welcoming the idea with enthusiasm. "Doubtless many youths of the colonies on the west coast," says a Monrovia newspaper, "will avail themselves of the opportunity offered them."

This remains to be seen. The sum of \$3,000 is required from every student for a five-years' course. This is probably very cheap, for it is to include every expense for five years in England and transportation both ways. But the number of African boys who can raise \$3,000 for this or any other purpose is not very large. If any considerable number of them are able to accept the offer it is likely to be because their friends and churches, and even the colonial government, chip in to help them raise the required sum.—Chicago Journal.

REVIEW.

THE BOWMAN LECTURE ON THE PRESENT STATE OF OUR KNOWLEDGE REGARDING VISUAL SENSATION.*

BY R. MARCUS GUNN, F. R. C. S., ENGLAND.

LONDON LANCET, July 7, 1900.

He divides the subject into several distinct series of observations—first, the nature of the stimulus that excites vision; secondly, the manner in which this stimulus affects sentient cells; thirdly, the path and mode of conduction of the nerve impulse; and fourthly, the ultimate appreciation of the conducted impulse.

I. First, as to the nature of the stimulus. The expression “ether wave” must not be held necessarily to imply any actual movement in the ether, but rather an influence, a rapid, periodic change of its properties, the term “wave” simply meaning a disturbance of definite periodicity in space and time.

From every great centre of energy, such as the sun, radiations of energy take place and pass through space in the form of these ether disturbances. These vibrations or disturbances are held to be electro-magnetic, and can be reflected, refracted, absorbed, and prolonged. The length of the wave varies between many yards and four or five millionths of an inch. The human retina is influenced by a comparatively short part of the entire seal, corresponding to what may be called an “octave,” on either side of which are several “octaves” of invisible waves either too long or too short to be appreciated in this way. Variations in the length of the waves produce different effects on the retina of many animals and excite in man a definite series of color-sensations. There is no real distinction between heat and light waves, but we have two senses by which we can distinguish the same waves. The length of the wave corresponding to extreme red (32 millionths of an inch) is equivalent to about one-tenth the diameter of a red blood corpuscle, and that of violet, about one-twentieth.

* Delivered before the Ophthalmological Society of the United Kingdom on June 15th, 1900. Abstract in the *Lancet*, July 7, 1900.

II. The phenomena produced by light in living cells of no visual function may be stated to be: (1) movement of chlorophyll corpuscles, probably associated with protoplasmic currents; (2) chemical activity produced in chlorophyll containing cells of plants and animals; and (3) contraction of protoplasm. To these we may add (4) phototaxis, which is expressed in two ways—(a) the wandering of free cells towards the light, and (b) the position assumed by the cell, parallel to the axis of the incident ray. The earliest appearance of what can be called a visual organ is produced by a simple modification of surface epithelium. * * * * In every case of the animal kingdom in which true eyes are to be found, examples are presented showing a high ocular development with a high type of visual cell.

The general characteristics of such a visual cell are—(1) the end of the cell, corresponding to the cuticle, has a prolongation, usually in the form of a rod; (2) the opposite end of the cell is either directly continued as a conducting fibre, or is connected with a ganglion cell and ultimately with a nerve-fibre; and (3) pigment is present in the light-percipient cell itself, or in a distinct although closely related cell, often in both. It is to be noted that the main deposit of pigment is usually of a brown color, and that it is situated at the end of the cuticular prolongation furthest removed from the incident light, both in invertebrates and vertebrates.

In the vertebrate retina we have, first, the pigment epithelial cell. This is of comparatively large size so that in man each cell has several end-organs embedded in it. The outer part of the cell is colorless and contains the nucleus. The remainder of the cell-body possesses much pigment, principally in the form of needles or crystals called fuscine. From the inner or cuticular surface of the cell arise numerous fine processes which pass inwards for a considerable distance between the end organs; they are colorless or contain pigment according to previous conditions as regards shade or exposure to light. Secondly, the neural or visual epithelial cells are, in most vertebrates, of two kinds, named, from the shape of their outer segments, rods and cones. Each cell is much elongated in a direction perpendicular to the free surface of the retina, and while its outer extremity is more or less deeply embedded in the pigment epithelium, its inner end rests on the internuclear layer. Each may be divided primarily into cell-body and cuticular formation. Under this latter term are probably to be included not only the outer seg-

nient, but also the highly refractive outer part (so-called ellipsoid) of the inner segment. The cell-body, traced from the cuticular end, begins as a distinct granular protoplasmic swelling, called the myoid; then (immediately in the case of the cone, after a varying interval in the case of the rod) comes a nucleus or granule. Next, there is a constricted part of the cell known as the fibre, and, finally, the fibre-bulb or enlargement. The relative size of rods and cones varies greatly in different vertebrates, but, where both elements exist, the chief distinctions between them consist in the greater development of the myoid in cones, and in fact that the outer segment of the rods have, with few exceptions, a uniform reddish color under ordinary circumstances during life.

We now come to the most important question included in this division of our inquiry—viz., what are the evidences of effect produced on such specialized light-sentient cells by the action of light? Observations on this matter have been mainly conducted on the eyes of vertebrates, and I shall confine my remarks to the effect produced on this most highly developed form of retina. First, in the pigment epithelium, when at rest, the fuscine is collected in a close mass in the body of the cell. When stimulated by light (a) the long pigment particles wander forwards, that is, towards the light, and invade the processes which extend between the outer segments, reaching nearly up to the external limiting membrane. This migration seems to be due to, or at any rate associated with, currents in the fluid cell-protoplasm. Marked wandering of the pigment takes place in red light, but the movement is most active towards the violet end of the spectrum and the activity seems, roughly, to be inversely proportional to the wave-length. Once the pigment is in the forward position, it returns to the body of the cell very slowly in the dark. (b) Also caused by exposure to light we have swelling of the pigment cell processes, which consequently grasp the outer segments. In this way the retina, over an illuminated area, is made to adhere to the pigment epithelium, forming what has been called an epithelial optogram. (c) Yet another effect from light is the alteration in the reaction of the contents of the pigment cell. This seems to be an oxidizing process, accompanied by a substitution of an acid for a previously alkaline reaction, and there is reason to believe, from the action of staining fluids, that the change in reaction is communicated

to the rods and cones, and that the activity of the chemical change varies in amount according to the wave-length.

In the visual epithelium there are several important changes brought about by exposure to light. 1. The purple of the rods undergoes change of color wherever the light falls on the retina, and this action is strictly confined to the illuminated area. The red end of the spectrum has but little effect, and the most active wave-lengths are those that correspond to the yellowish-green, which are the waves chiefly absorbed. Absolute bleaching ultimately takes place, the rapidity of the process depending on the intensity of the proportioned to the wave-length. Once the pigment is in the for-light. The purple is slowly restored in darkness if the rods remain in contact with the pigment epithelium, so that the formation of the purple stain is evidently dependent upon some action in the pigment cell, presumably of a secretory nature. 2. Movement of the cone. While a cone protrudes well into the pigment layer when protected from light, it retracts rapidly on exposure, the contraction taking place in the cone-myoid. The shorter wave-lengths act most energetically. It would seem to be an illustration of movement caused in excitable protoplasm by light. Similar but more feeble movements have been described in the rod-myoid due to the same action. 3. Photo-electrical response. It has been conclusively demonstrated that the action of light upon the retina is accompanied by a marked electrical change. The current so induced travels from pigment epithelium to nerve fibre layer, is positive in character, and is ascribed to increased disintegration. On exposing a fresh eyeball to light there is first a very short pause, followed by a rapid rise (or positive deflection); with continued illumination the positive effect increases slowly or remains stationary; and on shutting off the light there is a further short sharp rise, succeeded by a gradual fall to the position of rest. Waller has shown that there is evidence of two antagonistic processes in every such response, one positive, the other negative, the positive effect being dominant in the case of the fresh eyeball, the one possibly an evidence of disintegration, the other of reintegration. Very weak illumination—e. g., moonlight—suffices to produce the electrical variation. It has been repeatedly asserted that the electrical change depends upon the retina proper and is independent of the pigment epithelium. This, however, seems to me to require further investigation; it is difficult to believe in a marked

change of this character, being produced by light without the presence and participation of the pigment epithelial cells in which there is every reason to think that the light energy is mainly arrested and transformed. According to Dewar and McKendrick white light is the most effective, but on examining with spectrum colors their observations seemed to show that the yellow rays have the greatest power and that there is a gradually diminishing action on either side of the yellow. These observations on the activity of different parts of the spectrum are, however, open to the objection that the difference in response depended on the intensity rather than upon the wavelength. If the electrical change is due to the effect of light on the pigment cell we should presumably have the greatest action from that part of the spectrum that is brightest at very low intensities.

If we now compare the evidences of the effect of light on visual and on certain non-visual cells we find a striking similarity. In both there is a marked stimulation of the cell-protoplasm, combined with chemical activity, and in the case of the visual cell the amount of effect seems capable of measurement by the galvanometer. Since writing this paragraph, Dr. A. D. Waller has brought forward evidence to prove that the light effect upon a fresh leaf is also accompanied by an electrical change, thus completing in a remarkable manner the parallelism here described.

III. The conduction of the impulse. The simplest example of the conduction of a light effect in an individual is in the case of a unicellular organism such as the euglena, where the whole cells responds to the influence communicated to it from without. In the neuro-muscular cells of the hydra the irritation is conveyed directly from the free surface to the deeply-lying processes which are in this way stimulated to contract. In the syphon of the pholas dactylus the superficial epithelium is pigmented and immediately beneath it there occurs a fine layer of contractile fibers which in turn overlie nerve cells, and these again are connected with the longitudinal muscle which moves the syphon on exposure to light. Here we have an instance of a photo-chemical change in the pigment cell causing movement of the subjacent contractile tissue, serving as a mechanical irritant of the nerve cell which occasions the general muscular movement of the syphon. This, of course, is not vision, but it is an effect, apparently purposeful, produced locally by light without any appeal to a central nerve mechanism. The effect required in lower forms of

animal life—viz., escape from danger or search for food—may thus be brought about by the local effect of light. Where the body to be protected is large it is necessary to have the sense organ associated with a central nervous mechanism in order to secure protection with the minimum of specialized tissue.

We get a local combination of many light-sensory cells to form a visual apparatus and a union of many ganglion cells to form a central nervous mass.

(The lecturer here described the modern views of the connection between different nerve cells.)

In the present state of our knowledge as to the nature of a nerve wave it is perhaps not of great importance in attempting to follow its path to know exactly how the different nerve cells are brought into physiological relation with one another, so long as we are familiar with the general characteristics and position of the path traversed. The actual nature of the process associated with progress of the nerve current would appear to be most easily explained by supposing that the force, originated for example in the sensory cell, produces a physico-chemical effect on the nearest particle of the associated nerve tissue, this effect being of such a nature that it produces in turn a similar change in the state of the particle next in order, so that the influence is transmitted onward. The influence produced locally seems to be accompanied by the formation of carbon-dioxide, and the progress of the impulse along the nerve can be traced by a change in the electrical condition known as the "current of action." The process leaves the nerve substance practically in its original condition, the nutrition of the fiber being maintained by its relation with the protoplasm of the associated ganglion cell, aided possibly in the case of long medullated axons, by the cells of the medullary sheath. In altered blood states or inflammatory conditions exhaustion readily occurs and restoration may be extremely slow or deferred indefinitely.

In the visual path, an effect having been produced on the sensory epithelial cell is immediately influential as far as the extreme termination of this cell or fibre-bulb. From this it is communicated to a bipolar ganglion cell (or inner granule), and then to one of the ganglion cells of the ganglion cell layer. Along the axis-cylinder of this cell the impulse passes as far as the external geniculate body, where this axis-cylinder ends, but the nerve wave is passed on to another neurone, the cell-body of which is in this situation, and travels along

tion of the cone-myoid, which may be either due to a direct action of light on protoplasm, comparable to what has been observed in *pelomyxa palustris*, or to a change produced indirectly, the cone-myoid contracting in consequence of some stimulus, possibly chemical, received from the pigment cell.

Prolonged exposure to an intense illumination—direct sunlight for example—causes actual changes of so pronounced a character that the outer segments of the visual cells are altered anatomically as well as functionally, and this alteration may persist for many months or even remain permanent.

The fundamental idea of vision seems to be to connect visual impression with muscular action, so that the animal may move out of danger, protect itself, or find its food. There is no necessary consciousness associated with any such visual influence, even in the case of animal forms where different wave lengths produce a difference in the muscular movements induced.

As we ascend in the animal scale we get further centralization of the nerve mass, and find the visual apparatus intimately connected with it. Even in the case of the vertebrate brain it has been asserted that in all probability each part was primarily independent, and the division connected with the optic nerve was one of conspicuous importance. In the lower vertebrates—fishes, amphibians, reptiles and birds—we still find the central connection of the optic nerves almost confined to one part, the large optic lobes corresponding to the corpora quadrigemina of mammals. But as we ascend the scale this part of the brain becomes progressively smaller and less developed and seems to be mainly instrumental in the transmission of visual impulses that are to be immediately—that is, without reference to the visual cortex—conveyed as reflexes by way of motor nuclei to muscles, such as those for movements of the iris, and possibly to some extent of the eyeball—movements that can occur independently of the sensory vision. There is absolutely no evidence that there is any difference in the character of the original impulse, or in the optic nerve-fibers that convey it, to distinguish what will be a mere muscular reflex and what will be a conscious impression. As to the manner in which such fibers are connected with visual cells, so that there may be, as it were, double central representations (sensory and reflex) of every part of the retinal area, we are still ignorant. It is possible that this is brought about by lateral communications

its axon to have an effect finally upon a nerve cell of the cortex. Ramon-y-Cajal believes that there is no direct relation, beyond that of mere contiguity, between the bulb and the outer process of the bipolar cell; that, in fact, the relation of the sensory epithelial cell to the inner granule is exactly similar to what he has described as existing between two ganglion cells elsewhere. Other observers have found distinct evidence of a direct anatomical continuity between these elements. Golgi again, and Dogiel have described a direct connection between the ganglion and the bipolar cells.

Many rods (more than twenty) and several cones may be physiologically connected respectively with single bipolar cells, and several bipolar cells with one ganglion cell. This satisfactorily accounts for the relatively large number of rod and cone cells in the retina as compared with the number of fibers in the optic nerve. The cone cells of the fovea appear, however, to be exceptional, in that each has only one bipolar cell and one ganglion cell in relation with it.

What conjecture can we form with regard to the origin of the visual nerve impulse? Though the wave force which excites the retina is electrical the nerve impulse cannot be a mere continuation of it, since an electrical ether wave travels at a rate immeasurably greater than that of a nerve current. It is certain that the energy contained in the light wave must undergo a profound change when it strikes and is arrested by the pigment, and the change that first suggests itself is that heat should be produced. But as a result of this transformed energy in the pigment chemical changes are induced, which should be compared with those brought about in plants by the action of light on chlorophyll. These chemical changes are also probably factors in the promotion of protoplasmic movement. In the case of chlorophyll the wave-lengths that are mainly arrested are the most chemically efficient, and this probably holds good also in the case of the retinal pigment.

The pigment cell when at rest has a marked secretory function, evidenced by the formation of retinal purple in the outer segments of the rods. The material thus formed is undoubtedly of great visual value, though there is no conclusive proof that the purple stain itself has actually any direct influence on sensation. Although complete rest—that is, darkness—causes an accumulation of this secretion, the function proceeds during exposure to light.

The next fact of importance in this consideration is the contrac-

between the processes of retinal ganglion cells of one or other layer, but more probably it is effected by a collateral from the axon of the last retinal neurone.

The visual fibers, strictly so-called, take, at least mainly, another course in the higher vertebrates. In man, for example, they pass from the optic tract to the external geniculate body and pulvinar, and thence the impulse is conveyed by fibers which traverse the posterior end of the internal capsule and pass, as the optic radiations of Gratiolet, to the cortex of the calcarine fissure and its immediate neighborhood. The crossing of the optic nerve fibers at the chiasma so as to produce unilateral representation of the corresponding half of each retinal field; the bilateral representation of each macula; the association fibers which bring the cortical region of visual projection into relation with the much more extensive area of visual representation; the question of a distinct unilateral representation of each ocular visual field; and the arguments for and against a separate cortical area instrumental in color perception must be left with a bare mention.

As regards the receiving apparatus, the visual fibers end by communicating directly, or indirectly through a nervous felt-work, with cells of the visual area, and destruction of this part of the cortex causes immediate blindness of a corresponding part of the field of vision. It would appear that the upper and lower lips of the calcarine fissure of one occipital lobe correspond respectively to the upper and lower parts of the homonymous halves of both retinae, and that the fovea is represented along the entire length of the fundus of the fissure.

But whether the cells of the calcarine cortex are the seat of conscious impressions or merely constitute a stage in the path to yet higher centers, and whether the same cerebral cell is capable of appreciation of differences in color as well as of difference in amount of light effect, must remain debatable questions. So much only may be observed, that this part of the cortex is particularly rich in cells, mostly of small size, while there is no reason to regard a small nerve cell as inferior to a large one in functional activity.

IV. With regard to the broad facts of our recognition of the conducted impulse we have evidently two distinct sensations dependent upon light—color and brightness; both influenced by differences in wave rapidities or wave lengths.

On gradually reducing the intensity of the spectrum the colors fade and cease to be recognizable, but not simultaneously. Of these two sensations, light and color, that for light is the one that persists with the smallest recognizable stimulus and is presumably the more elementary. The most elementary visual sensation is that derived from waves near E, that is for green. Clinically we have additional proof of this difference; for example, in cases of optic nerve diseases with failure of conduction, color sensation disappearing before that of light. Moreover, in the case of total congenital color-blindness the brightest part of the spectrum is also in the green, about the line E, just as we find it to be on sufficiently diminishing the intensity of the solar spectrum to the normal eye. In fact, the appreciation and conduction of the stimuli associated with color sensation seem to be more delicate than for light; a greater stimulus is needed to excite it, and it is more readily affected by any failure in the conducting path. The longest visible waves are recognizable as a color (red) at the same time as they become visible as light, while in the case of shorter waves near E (green) there is a marked interval between the intensity necessary for the perception of light and that for color. Green, indeed, affords us the best clinical test of early failure of conduction, the appreciation of the color failing, while that for light persists.

Of these two sensations there is reason to regard light perception as the more primitive, and the primitive type of visual cell is pigmented epithelium. We are encouraged, then, to consider this part of our retina as mainly concerned in the appreciation of light as distinguished from color, and many facts support this view. Thus, in disease of the pigment epithelium there is difficulty in appreciating differences in the amount of light. Again, when changes have occurred in the pigment cells, when the eye is kept in the dark for about an hour, there is a remarkable increase in the sensitiveness of the retina to light. We may infer that the chemical action, induced by light on a particular secretion of the pigmented epithelium, is intimately associated with the causation of the effect recognized as light sense; and the next step is to inquire how the impression is conveyed from the pigment cell, whether by rod and cone cells indifferently, or mainly by one of them. Although the power of appreciating a faint light stimulus is so markedly increased as a whole by "dark adaptation," we find that this does not apply to the entire visual

field, and does not apply equally to all parts of the field where it is increased. Thus in the central area the light sense is actually diminished under these conditions; and whereas it is increased outside the central area, it is relatively more augmented as we approach the periphery. That is to say, it is not increased at all where cones alone are present, and the increase becomes more marked as the rods become more and more the predominant element. It has therefore been argued, with reason, that the rods are elements concerned in the appreciation of light, or, rather, of the change produced in the pigment cells by light, while the eye is thus adapted; although whether or not the retinal purple is visually concerned may be considered still an open question. So definite is the physiological area of diminished light sense in this condition that it can be shown to correspond with the projection of the rod-free foveal retina.

Granted, then, that the rods have this particular function, it by no means follows that the cones are not serviceable in the appreciation of light in ordinary illumination, though their peculiar office is presumably concerned with the recognition of differences of stimulation associated with variations in wave length recognized as colors. It would seem as if a minor amount of stimulation that can be appreciated only by the rods must be excited before the cones come into functional activity. It is possible that the first action of light on the pigment cell is instrumental in providing a product of secretion or decomposition that is required so that the finer differences in wave lengths be appreciated by the cones and the color sense stimuli be thereby initiated. Very possibly the movement of the cone-myoid is of service in this association.

E OLIVER BELT.

REPORTS OF SOCIETIES.

BRITISH MEDICAL ASSOCIATION, SECTION OF OPHTHALMOLOGY, IPSWICH, AUGUST, 1900.

DR. W. A. BRAILEY in the Chair.

President's Address on *Ocular Headaches*.

Our presence here today reminds me of the first meeting of the Ophthalmological Section of the British Medical Association in 1880, at Cambridge, when I chanced to be one of the secretaries under the distinguished presidency of Bowman, with the support of George Critchett, Donders and many other notable men.

I have been doubtful as to the advisability of delivering an address, but it is difficult to pass over our assembly with the mere words of welcome which I venture to offer you, so I lay before you in the form of an address a small contribution to the work of our meeting made as wide as possible in its bearings on the work of our profession.

The subject is ocular headaches, that is, headaches in association with refractive and muscular ocular errors. While the great majority of headaches are, of course, independent of the eyes, it is a matter of general acceptance that ocular errors produce headache, though by no means in all cases. Are there any errors especially effective in the causation of headaches, or in producing any particular form of headache?

Muscular errors are by far the most important, though, of course, these must be ultimately of nervous origin. Other influences than muscles are glare and sudden irregularities in the distribution of light, such as flickering.

Muscular ocular movements are—

Intrinsic	{ pupillary
	{ accommodative
Extrinsic	{ of recti
	{ and obliqui muscles

Pupillary movements are unimportant except as slightly influencing glare.

Accommodative movements are bound up with the great majority of ocular headaches.

It is a general law that the larger the ocular error the less the effect produced on the head, the reason being that a great defect of accommodative powers leads to its abandonment, the patient seeing as best he can without it. So also uncorrected presbyopia is rare as a cause of headache except just at its commencement. It may cause strain and burning, but not headache.

A highly hypermetropic patient will read close with poor vision, but no aching, as also will patients with high hypermetropic astigmatism. Similarly great inequality of refraction gives comparatively little trouble, the worse eye being abandoned to disuse, and muscular action being regulated by the better one.

High degrees of myopia and myopic astigmatism produce little effect, distant objects hardly being seen, while near vision can be remedied largely by adjusting the distance. But low degrees of hypermetropia and hypermetropic astigmatism are often causes, especially when they lead to an excess of effort both in amount and duration beyond what is needed, as with weak muscles or hypersensitive nervous supply, this spasm of accommodation continuing in distant vision, and even under retinoscopy in the dark.

But both spasm and headache are more produced by moderate inequality of refraction, especially if astigmatic, and most of all by astigmatism with asymmetry of the axes. The ciliary muscle appears to act unequally on the two sides in correcting this, or a muscle even in different parts of its circuit in remedying astigmatism or asymmetry of axes. Evidence of this is seen when atropine reveals astigmatism on one side or both, increases its amount, or alters the axis of the correcting lens in amount less than 90 degrees.

So astigmatism, often unequal-sided, may become manifest when presbyopia begins, and refractive defects reveal themselves to retinoscopic examination in eyes blind with fundus changes, such as optic atrophy, in proportion beyond that observed in average seeing eyes. The above refractive errors cause aching in the eyes, often passing presently or the following morning into the brows, immediate aching in the brows, temples, back of the head, and occasionally also headache of the type of migraine. Treatment by appropriate glasses is of extreme value.

Errors of the extrinsic muscles produce headache, but less than of the accommodation muscles, though more migraine, more giddiness, and more general distress. Here also the rule holds; the larger

the amount of error the less the disturbance, the explanation being that in considerable degrees of strabismus the image falls on the peripheral and so less acutely seeing retina.

But another potent factor in headaches is the tendency to binocular vision, and so we have another rule—the stronger the tendency to binocular vision the more headache produced by an error of the recti and obliqui muscles.

Binocular vision varies much in its strength in different subjects. Possibly there are natural differences related to the centers as much as to the muscles, for I have seen such indisposition run through families. But binocular vision appears to be generally made rather than born. Babies often squint irregularly till after a few weeks of life they get their yellow spots gradually to accord. I have met cases where, instead of bringing them into harmony, the child has developed another retinal point to work with the opposite yellow spot in an eye congenitally squinting, though with fair concomitant movement. Rectification of such apparent squint by tenotomy will produce diplopia.

Other cases are common where the two eyes remain quite independent: for example, where there is congenital want of power of both external recti from central defect. Diplopia is absent, and the child sees to his left with the right eye, and vice versa.

Binocular vision is not strongly established by the early age at which ordinary concomitant squint arises: so diplopia, though present, gives no trouble, and, indeed, is little noticed even in the comparatively rare cases where each eye has normal refraction and vision.

But take the case of a paralytic strabismus—for example, of the superior oblique—suddenly arising in an adult. Here we have much disturbance, and the same with cases where, when the two eyes have been used for different purposes—that is, one for near and the other for far vision—we suddenly attempt by lenses and prisms to unite the images, the results being distress, giddiness, migraine and other headache. But extrinsic muscles may, like the ciliary, have large latent defects, and I suspect that many obscure cases of headache have their solution here. I quote the case of Mrs. X., aged sixty, neurotic. A surgeon practicing many years ago in London gave, for some ocular distress when she was aged forty, glasses for constant wear, each eye + 1.25 D sph., 10° prism base in, and in response to her gradually increasing trouble, altered them through eighteen

changes extending over twenty years to $+1$ D sph., 6° prism base in each eye for constant distant wear, and $+4.5$ D sph., 7° prism base in for near work. Then I came in, and finding to ordinary tests no more than the average error of lateral muscles, tried to take away the prisms, but to no purpose. She declared that they "supported her" and "held her up." Consequently, I made a closer examination, and found a difference of vertical level, which has increased in the six subsequent years! so now she is "supported," satisfactorily on the whole, by, for distance, right eye: $+1$ D cyl., 115° , 4° prism base in; left eye: $+0.75$ D sph., $+0.25$ D cyl., 115° , 4° prism base down.

My belief is that this vertical error was always the essential one, and that its existence weakened the power of the internal recti so much that she was able to wear the huge prisms that she had. Without the glasses she feels an intolerable strain, and cannot bear to look.

One more case of Miss W., aged thirty-eight, a doctor's daughter, with occasional distress. I found low hypermetropic astigmatism and insufficiency of the internal recti. Through several changes she has come to the constant wear of right eye: $+0.25$ D cyl., 150° , 3° prism base in, left eye the same, with, in addition, 1° vertical prism. With these she gets on fairly; without them she cannot bear to look.

These, I think, are real latent errors, doubtless very conducive to quackery, and so to be touched cautiously, especially as regards operation.

I cite also a case of great power of adjustment, though with distress, but no diplopia ever. Mrs. M., a doctor's wife, sensible, suffering much from migraine, quite unrelieved by spherical lenses. The images at six meters show half a meter difference of vertical level. She has now worn for two years, with great benefit to her head, her full refractive correction: Each eye — 1.5 D sph., — 0.25 D cyl., 165° , 3° vertical prism in opposite directions.

I myself have a latent difference of vertical level, though I am happily entirely free from headache, but not quite free from migraine.

Besides individual tendencies other influences alter the disturbing effect of ocular errors:

1. Age, they being most potent between ten and forty-five.
2. Sex, women being the greater sufferers.
3. Nationality. My experience does not extend much beyond English and citizens of the United States, the latter of whom are

eminently affected by them, so that a series of doctors and operators has arisen to take charge of that special subsection of practice. Doubtless there are other influences, such as occupation and temporary states of the nervous system.

Discussion on the *treatment of chronic glaucoma*.

This discussion was opened by Mr. Richardson Cross, who based his opinion on the results obtained in forty-seven cases of the disease which had come under his care in private practice. He had frequently found difficulty in distinguishing some from cases of optic atrophy, and the perimeter was of special value in these cases, the contraction on the nasal side being very characteristic. There was no doubt as to the fact that progressive glaucoma would cause blindness sooner or later through atrophy, if left to itself, and in the majority of cases drugs were incapable of saving the sight alone.

He looked upon iridectomy as the most useful operation, and in a simple chronic case it was comparatively easy to do, and very much easier than in acute cases. In some exceptional cases in which the presence of the disease was doubtful it could sometimes be cured by drugs alone, and he mentioned a case in which after treatment in this manner it showed no increase of tension after prolonged dilation with cocaine. The treatment of chronic glaucoma by drugs alone in nearly all cases, however, led only to the gradual deterioration of vision.

He then showed numerous charts of fields of vision which had been taken both before and after operation, and treatment with myotics, and in many of the cases the fields of vision had improved after the disease had been arrested. In the early cases he thought that sclerotomy done with a keratome, as recommended by Snellen, was very useful, and he preferred a keratome to a Graefe's knife, as he thought that a more peripheral wound could be made. He was strongly in favor of early operation, and he did not think that anything but harm could come in the majority of cases if drugs without operation were relied on.

Dr. John Hern thought that the one thing needful was an early diagnosis, and the sooner an iridectomy was done the better the chance of a good result. He thought that there was a close relation between optic atrophy and glaucoma. His practice was to do an iridectomy as soon as possible and to follow this up by establishing a communication between the anterior chamber and the vitreous by

passing backward through the coloboma above the lens a narrow, double-edged knife and then to slightly rotate this in order to make the opening a little larger.

Mr. Work Dodd was by no means inclined to look so favorably upon iridectomy as a cure, as Mr. Cross appeared to, and this led him to remove the superior cervical ganglion of the sympathetic. He described minutely his case, which immediately responded by the pupil becoming contracted and the tension diminishing. He thought that in a suitable case this operation was justifiable.

Dr. Carl Grossmann said that he preferred pilocarpin to eserine. Massage had given good results, especially in the form of a mallet driven by a galvano-motor. One mode of treatment, which was especially useful when a patient was averse to the more serious operation of iridectomy, was the subconjunctival injection of sterilized salt solution, which had given very encouraging results in his hands.

Mr. Bower fully agreed that the sooner an operation was done the better, but thought that occasionally a case might be kept in a practically stationary state by the use of myotics, and he mentioned a case he had had under observation which had not got materially worse during six years. In very early cases, with good vision, he thought that the operation of sclerotomy as suggested by Mr. Cross might be very valuable, as the immediate result on vision would not be so marked as if a piece of the iris were to be removed.

Mr. G. A. Berry had seen many early cases kept in check for years with pilocarpin, but he was strongly of opinion that in cases which had entered the confirmed stage the sooner iridectomy was done the better. He had seen cases in which ten or fifteen years after the operation the vision had undergone no deterioration. He thought that the worse prognosis was in those in which there existed a central or paracentral scotoma. He preferred iridectomy to sclerotomy, and did both with a keratome. The best results were obtained in those cases which healed up with a flat scar. Scleral puncture he had tried, as recommended by Priestly Smith, as a preliminary to iridectomy. He had never excised the superior cervical ganglion of the sympathetic.

Mr. Devereux Marshall thought that considerable damage might be done by the operation recommended by Mr. Hern, both to the lens and also to the ciliary body.

The President thought there was no reason to believe that the

disease would progress unless the tension were unrelieved. He thought that there were many falacies in the perimeter. While coarse tests with a rapidly moving object, whether the finger or a 10 mm. square, show a good field, yet fine tests show very great contraction of the field, and this would explain easily the considerable enlargement of the field that may undoubtedly occur under myotics. With regard to prognosis, although he did not consider it good, yet in cases on which he had operated early he had never had a bad result. When, however, the fields failed and the disc atrophied, he thought that as a rule the disease progressed in spite of all treatment.

Mr. Sidney Stephenson read a paper on the *Etiology of Phlyctenular Eye Affections*, and according to his experience 20 to 25 per cent of the eye patients at a children's hospital suffer from this disease. There is, nevertheless, no general agreement as to the etiology of the cases. Mr. Stephenson had collected 669 cases met with in hospital practice and analyzed them. With special reference to three main points—(1) the frequency of an associated eczematous inflammation of the skin; (2) the existence of a tuberculous diathesis; (3) the influence of zymotic ailments in exciting phlyctenular disorders. He found that of the total number of cases eczema was present, or had been present, or was known to have appeared later, in no less than 53.08 per cent. He was, therefore, inclined to regard phlyctenulae as an ocular manifestation of eczematous inflammation.

The author also pointed out that eczema affected also the mucous membrane of the nose, lip, tongue and palate. The oral lesions had hitherto escaped description. They commenced as vesicles, and speedily formed small circular or oval ulcers which soon healed. Mr. Stephenson found tubercular tendency or tubercle in 31.98 per cent of his 669 cases. He looked upon a marked tendency to phlyctenular disease as an indication that the patient was likely to become tuberculous—that is to say, if he did not already suffer from tubercle. In 13.45 per cent of his cases measles, whooping cough, chicken pox or scarlet fever was assigned as the cause of the eye mischief. Mr. Stephenson regarded phlyctenular disease as due remotely to the tuberculous diathesis, and immediately to an eruption of eczema on the surface of the eyeball. The exciting cause might be of a general nature, as bad hygienic surroundings or measles, or of a local character, as slight injuries to the eyeball.

Mr. Kenneth Scott described a case of *Dacryo-Cystitis Aggra-*

vans, which occurred in a woman, a native of Upper Egypt, who came to him with double dacryo-cystitis, which on the left side had attained an enormous size and resembled a malignant tumor of the face. He opened it and evacuated a large quantity of pus and mucus. The patient did well, and in five weeks she was quite recovered.

Mr. W. Watson Griffin related a case of *Leuco-Sarcoma of the Iris*, which occurred in a young lady aged nineteen. In the left eye there was a growth visible in part to the naked eye through the pupil, which pushed forward the iris at the lower and outer side. The lens was displaced inward and partially opaque. Mr. Griffin diagnosed a malignant growth and excised the eye. On examination it proved to be a leuco sarcoma, with very marked hyaline changes. He thought that in a case treated so early as this the prognosis should be good. The points of chief interest were the age of the patient (most cases occurring in later life), the extensive hyaline changes and the dense white appearance.

The discussion on *Lachrymal Obstruction* was opened by Mr. G. A. Berry, who referred to the great divergence of opinion held by surgeons as to the best method of treating this affection. He was inclined to think that there was a great tendency to overtreat these cases, and this was due to the common belief that the cause of nearly all cases was obstruction in the nasal duct, whereas in reality it was catarrh of the said duct. He condemned the use of large probes, as these frequently caused a stricture at the opening into the sac, and this was especially likely to occur when the lower canaliculus had been slit. He preferred in nearly all cases to slit the upper one, as the direction of the channel thus made lay more in a line with the duct and there was consequently less stretching at the mouth of the sac and less laceration of the surrounding parts when a probe was passed. Owing to the fact that removal of the sac generally produces but little epiphora, it was obvious that faulty excretion was not the chief cause of the trouble, which was probably due to hyper secretion of tears caused by an irritation which originated in the sac and possibly in the duct also.

In early cases Mr. Berry advocated slitting the upper canaliculus and then probing at intervals of a fortnight or longer, and usually three or four probings were sufficient if the case had come under treatment early. As a rule syringing was unnecessary except in those

cases in which the sac was overdilated, and then this followed by pressure over the sac was very useful. Should an abscess develop, this was best treated by opening one or both canaliculi, or if necessary opening it on the cheek.

In conclusion Mr. Berry advised early interference in catarrhal conditions of the sac, viz., by slitting the upper canaliculus into the sac, and then probing at not too short intervals with a medium-sized probe. In dacryo-cystitis free incision, with good drainage, was usually indicated; this must be followed by opening of the canaliculi and in some cases by probing at fairly long intervals. In chronic cases or those frequently recurring complete removal of the sac was probably the best treatment. Large probes, frequent probings and the use of styles were in his opinion to be avoided, while removal of the lacrimal gland or any portion of it was altogether uncalled for.

Dr. Cartwright said he avoided as far as possible slitting canaliculi, as it caused needless damage and impaired this function. In advanced cases some could be cured by small probes, while for others gold styles were necessary. He thought that syringing was useful, but he had never seen any advantages arise from the use of hollow styles, nor had he ever seen a case in which it was necessary to remove the lacrimal gland.

Mr. Kenneth Scott, in cases of chronic inflammatory thickening, preferred to use rather large probes and the syringe. He thought that lead styles were the best, and had never seen harm arise from slitting the canaliculus.

Dr. St. Clair Thomson approached the subject from the standpoint of a Rhinologist, and in the cases he had examined he had not found any disease of the nose to account for the trouble, though he thought that the primary infection of the duct and sac might come from it. He showed a drawing of a section of the nose to illustrate the large diameter of the nasal end of the duct, also the large space between the inferior turbinate bone and the outer wall of the nose.

Mr. Bower thought that overtreatment was responsible for much that was unsatisfactory. He never used styles and very seldom probes. In acute cases he considered the best treatment was to let the pus out and allow the case to quiet down, but if this failed he preferred to dissect out the sac.

Mr. Ernest Clarke thought that simple cases were best treated by dilating the canaliculus and syringing. He strongly condemned

the use of large probes, but in cases of stricture, he recommended the slitting of the lower canaliculus and the removal of its ocular surface, so as to accommodate a nail-headed gold style.

Mr. Richardson Cross saw no harm in slitting the canaliculus, and in severe cases he opened both. If a stricture existed the probe must be used, but he thought there was no advantage in using large ones.

Sydney Stephenson was convinced that in difficult cases there was nothing so good as large probes, and he preferred to rapidly dilate with Theobald's probes, the largest being 4 mm. in diameter. Mucocoeles in new-born children usually yielded to pressure over the sac and evacuation of its contents.

Mr. Maddox recommended the attachment of a simple nipple to the nozzle of a Weber's syringe for the injection of cocaine. When a style was indicated he advised the use of a soft one, such as the end of a fine silk catheter, which should be worn for a few days before placing a permanent metal one in the duct.

Mr. Ensor, in severe cases, dilated rapidly under an anaesthetic with Couper's probes and then placed in a lead style.

Mr. Work Dodd drew attention to the importance of attending to the general health.

Remarks were also made by Mr. Blair and the President.

Mr. Berry in reply stated that he had never seen anything but harm arise from the use of large probes.

Mr. Ernest Clarke read notes of a case of *Cerebral Tumor, with Optic Neuritis*, in a man aged thirty-six. The right disc showed post neuritic atrophy, while the left was a typical choked disc with 3 D of swelling, but no hemorrhages. The existence of a tumor in the left frontal lobe was diagnosed. As the patient became rapidly worse the skull was trephined by Mr. Arbuthnot Lane. The brain bulged greatly when the tension was relieved, but the patient died the next day. At the autopsy the tumor was found where it was expected, and it proved to be a Psammo-glioma.

Mr. Freeland Fergus read a paper on *Some Forms of Optic Nerve Diseases*, probably of sympathetic origin, and he related five cases in which injury to one eye was followed after a few weeks by contraction of the field of vision in the other. This contraction was always accompanied by a diminution of the visual acuteness. In only one of the cases mentioned was there anything at all resembling an

ordinary sympathetic ophthalmitis. Dr. Fergus urged that in all cases of injury to one eye a close watch should be kept on the condition of the optic nerve of the other. This was to be done not merely with the ophthalmoscope, but also by the constant examination of the field of vision and of the minimum of light sense. These two functions depended in part on the healthy condition of the optic nerve, and defects in them often showed lesions of the optic nerve before they could be detected with the ophthalmoscope.

The President asked if tension as a possible cause of failure of vision had been excluded.

Remarks were also made by Mr. Cross and Mr. Berry.

In reply Dr. Fergus said that he had carefully eliminated tension as a cause of failure. He thought that possibly the onset of sympathetic ophthalma might be predicted by observations of the field of vision.

Mr. E. E. Maddox *demonstrated a Stereoscope* for the exercise of eyes after operations on the muscles, in which each eye could be shut off from sight by small screens worked by electro-magnets inside the instrument by the surgeon. He also showed some new needles with round holes which could be threaded more readily than those of the ordinary pattern. For advancements he had had made some silk sutures colored green and black.

At the fifth annual meeting of Ophthalmologic and Oto-Laryngologic Association, held in St. Louis, April 5-6-7, 1900, the following were elected officers for the current year: Dr. M. A. Goldstein, of St. Louis, President; Dr. H. V. Würdemann, First Vice-President; Dr. C. R. Holmes, of Cincinnati, Second Vice-President; Dr. F. C. Ewing, Third Vice-President; Dr. W. L. Ballinger, of Chicago, Secretary; Dr. W. L. Dayton, of Lincoln, Nebraska, Treasurer. The next place of meeting will be at Cincinnati, April, 1901.

In the second volume of "Progressive Medicine," for 1900, the chapter devoted to Ophthalmology is very ably written by Dr. Edward Jackson, of Denver. The chapter includes eighty pages of exceedingly valuable material.

NEWS ITEMS.

*Personals and items of interest should be sent to
Dr. Frank Allport, 92 State St., Chicago.*

Dr. Leop. Grossman, of Budapest, is dead.

Dr. Lucien Howe, of Buffalo, is in Europe.

Dr. and Mrs. Geo. F. Fisk, of Chicago, have recently returned from a two months' stay in Colorado, and have sailed for Europe.

Dr. Edw. Giles has been appointed surgeon to the Manhattan Eye and Ear Hospital, New York.

Dr. E. S. Peck has been appointed Professor of Ophthalmology, N. Y. Post-Graduate School and Hospital.

St. Luke's Hospital, Chicago, has received a bequest of \$5,000 from the late Mrs. Effie McKinley.

An imperial decree issued in Austria admits women to practice as physicians and chemists on the same conditions as men.

Dr. C. F. Clark, of Columbus, has recently returned from his vacation in Canada.

Drs. S. Louis Ziegler and G. E. de Schweinitz, of Philadelphia, have returned from Europe.

Dr. Frank La Force, of Ottumwa, Ill., is serving an internship in the Illinois Charitable Eye and Ear Infirmary.

At Breslau, Dr. O. Meyer has been selected as chief of the great Silician Ophthalmic Institution, in place of Dr. Landmann.

Dr. R. O. Born, of New York, has been appointed Professor of Ophthalmology at the New York Polyclinic and Hospital.

Prof. Carl Hess, of Marburg, succeeds Prof. J. V. Michel, of Wurzburg, resigned.

Iodoform odor may be removed from the hand by thorough washing in vinegar after the use of soap and water.

For the fifth time, Sir William MacCormac has been appointed President of the Royal College of Surgeons of England.

A meeting of the Wisconsin Optical Society was held in the club room of the Plankinton House, Milwaukee, on July 20th.—The Keystone.

W. K. Rogers, of Columbus, Ohio, believes scopolamine to be untrustworthy for refraction work.

Dr. Best, now first assistant of the University Eye Clinic, is to become Professor at Giessen.

At Strasburg, Dr. Landolt, assistant at the University, will be promoted to a professorship.

Mr. Allen Dexter, M. B., of London, has been made Eye Surgeon at the Oxford Eye Hospital.

Dr. Scrocczynski, favorably known as an instructor in the diseases of the eye, died recently at Krakau.

Dr. J. E. Kilvert, L. R. C. P., M. R. C. S., has been made senior house surgeon at St. Thomas Hospital.

Mr. Kenneth Scott, F. R. C. S., has been designated as surgeon to the St. Mary's Children Hospital, Plaistow.

Prof. Hirschberg, Privy Councillor, has been elected an honorary member of the Medical Society of Constantinople.

Ophthalmologists, as well as Neurologists, will regret to learn of the death of Dr. Landon Carter Gray, of New York.

W. T. Lister will succeed C. Devereaux Marshall as Curator at the Royal London Ophthalmic Hospital, the latter having resigned.

Dr. Charles S. Blair, F. R. C. S., has been appointed assistant surgeon at the Western Ophthalmic Hospital, London.

Dr. L. Webster Fox, of Philadelphia, has been spending his holidays at Kennebunk Port, Maine. He returns to Philadelphia Sept. 21st.

Dr. D. B. St. John Roosa, of New York, has been spending his vacation at Newport and the White Mountains.

Dr. A. B. Hale, of Chicago, has been quite seriously ill with typhoid fever at the Baptist Hospital in that city.

Dr. Frank Van Fleet has been promoted to a full professorship in the New York Post Graduate School and Hospital.

Mr. George Thompson, M. B. C. M., Edinburg, was recently appointed assistant surgeon at the Western Ophthalmic Hospital, London.

Mr. W. T. Holmes Spicer, M. A. M. B. Cantab., F. R. C. S., Eng., has been made surgeon at the Royal London Ophthalmic Hospital.

At a recent meeting of the Muscatine, Iowa, Medical Society, Dr. H. Johnson, Dean of Muscatine, read a paper on Injuries of the Cornea.

Through the bequest of George W. Cross, of Lower Merion, the Wills Eye Hospital, Philadelphia, has become beneficiary to a considerable estate.

The many friends of Dr. Swan M. Burnett will be glad to hear that he is convalescent from his recent severe illness from typhoid fever.

Prof. Kuhnt, of Königsberg, has been offered the chair of ophthalmology at the University of Würzburg, as successor to the late Prof. Michel.

Mr. A. Hallidis, M.B., F. R. C. S., has received the appointment of ophthalmic surgeon to the Hastings, St. Leonard's and East Sussex Hospital, England.

The St. Peter's Hospital Staff at Albany, New York, has recently been reorganized. The ophthalmologists are Drs. Geo. S. Munson and Dr. Theo. F. C. Van Allen.

Mr. Kenneth E. Campbell, M. B., F. R. C. S., late senior assistant surgeon, has received the appointment of surgeon at the Western Ophthalmic Hospital, London.

On February 1 the new Eye Clinic was inaugurated at Prague, a full description of which, with illustrations, is given by Professor Czermak in the *Prager Med.-Wochenschr.*

Dr. Edward Jackson, of Denver, at the last meeting of the American Medical Association, was appointed a member of the Committee of Prize Essays for the coming year.

At a recent meeting of the Kankakee Valley District Medical Society, held at Hammond, Ind., Dr. Geo. W. Van Benschoten, of South Bend, read a paper on "The Relation of the Health to the Eye and its Diseases."

Gerhart calls attention to a discovery of Konig's, viz., that of blue blindness in granular kidneys. A number of such cases have come under his notice.—*Philadelphia Med. Journal.*

The annual meeting of the New York State Optical Society was held at the Fifth Avenue Hotel on the evenings of June 26th and 27th. The attendance was disappointing.—*The Keystone.*

Dr. Nelson M. Black, Milwaukee, has been appointed one of the attending eye and ear surgeons to the Trinity Hospital, to the Clinic and lecturer on Ophthalmology and Otology to the Milwaukee Medical College.

Dr. H. V. Wurdemann has been made ophthalmic and aural

surgeon to the Trinity Hospital and the Eye and Ear Clinic, and has taken the Chair of Ophthalmology in the Milwaukee Medical College.

At a recent meeting of the Keokuk County (Iowa) Medical Society, Dr. C. J. Lukens of Oskaloosa read a paper on Simple Eye Diseases Encountered by the General Practitioner.

Conjunctivitis is very prevalent in New York, and the eye clinics are reported to be thronged with sufferers from this unpleasant malady. It is attributed by some to contagion acquired in the public baths.

Dr. H. V. Würdemann, of Milwaukee, associate editor to the Ophthalmic Record, has been elected honorary member of the Sociedad Científica "A. Alazate," one of the oldest scientific societies of Mexico.

Blind Music Lecturer.—Frederick Winklemann, who has been selected by the New York board of education as lecturer on music for the public schools of that city, has been blind all his life.—Kansas City Journal.

Dr. Walter L. Pyle and others have recently written an interesting book entitled "A Manual of Personal Hygiene." It is well illustrated, has a cloth cover, has 343 pages, is sold for \$1.50, and is published by W. B. Saunders & Co.

A number of opticians met on May 23d in the Chamber of Commerce at Charlotte, N. C., and organized a State optical society for the education of its members, protection to guard against adverse legislation and the suppression of fakirs.

There are more than twice as many blind persons in Russia as in the whole of the rest of Europe. They number 190,000, which is equivalent to 2 in every 1,000 of the population. In France and England the proportion is not quite 1 per 1,000.

Count Magaroly, M. D., Privy-Councillor, has resigned his position as Director of the University Eye Clinic in St. Petersburg,

which by his talent, industry, and devotion he has made one of the greatest institutions of its kind in the world.

Prof. Von Rothmund, M. D., has resigned his professorship at the University and his position as Director of the Eye Clinic of Munich. Geheimrath Dr. Jul. Hirschberg has been appointed professor ordinarius honorarius.

Dr. St. Bernheimer, of Vienna, has been appointed Professor in Ordinary of Ophthalmology at the University of Innsbruck, succeeding Prof. Dimmer, who follows a call as Professor of Ophthalmology at Gratz, in Styria.

It is with pleasure that we announce that Dr. Charles A. Oliver, of Philadelphia, has recently been honored with a Corresponding Membership in the Societe Centrale de Medicine du Department du Nord.

Mr. E. Treacher Collins, F. R. C. S., England, has recently been appointed surgeon to the Royal London Ophthalmic Hospital, and Mr. J. H. Fisher, M. B. London, F. R. C. S., England, has been appointed assistant surgeon at the same institution.

The La Crosse County (Wis.) Medical Society held a meeting at La Crosse, September 5. Dr. John A. L. Bradfield presented the paper of the evening on "Diseases and Injuries of the Cornea and Iris," and the discussion was opened by Dr. Mulford.

Dr. and Mrs. J. Elliott Colburn, of Chicago, have returned from their trip to Europe. After visiting the Paris Exposition they took a 500-mile bicycle trip through southern England and Wales.

At the next meeting of the Mississippi Valley Association, a paper will be read by Dr. Andrew Timberman, of Columbus, Ohio, on "The Etiologic Relations of Eyestrain." Another article will be read by Dr. L. W. Beardley of St. Louis, Mo., on "Canthoplasty in Ophthalmic Practice."

W. B. Saunders & Co. announce the establishment of a branch house in London. Previously they have dealt through a British firm.

but the extension of their business and the popularity of their works, especially in England, render direct business methods necessary. They are to be congratulated upon their energy, popularity and success.

Dr. Charles H. Beard has returned from Paris, where he served for two months as a member of the international jury of awards in the department of medicine and surgery at the exposition. He accords high praise to the exposition, and says that every courtesy was shown to the American members of the jury.

Anales de Oftamologia (Mexico), August.—Experimental Study of the Minimum Visual Angle. P. De Obarrio. In an attempt to repeat and control Wuelfing's experiments and determine the influence of colors on the appreciation of the minimum angle, Obarrio has learned that the minimum visual angle is much smaller than we have been accustomed to assume hitherto, also that the use of colors has no influence on the appreciation of this angle.

The last meeting of the New England Association of Opticians, before the summer adjournment, was held at the association rooms on the evening of June 19, with an attendance larger than usual. Mr. A. J. Cross was then presented to speak on "Practical Optometry." He explained that he had just returned from a tour of thirteen Middle Western States, and he referred to the satisfactory condition in general in which he had found opticians in the states visited.—"The Keystone."

A Severe Remedy.—A little boy came home after the children had their eyes examined, with the following note, duly signed by the principal:—

"Mr. Judkins: Dear Sir—Your son shows decided indications of astigmatism, and his case is one that should be attended to without delay."

The father sent the following answer:—

"Mr. Kershaw: Dear Sir—Whip it out of him. Yours truly, Hiram Judkins."—Detroit Free Press.

The regular monthly meeting of the New York City Optical Society was held at the Fifth Avenue Hotel on the evening of June 13th.

Prof. Fox opened the scientific part of the meeting and gave an hour's talk on "Achromatic Lenses." Concluding, he wishes the members pleasant vacations and when they came together at the fall sessions he optimistically hoped all disputes between oculists and opticians would be at an end. He was followed by L. L. Ferguson, who described a new instrument for making skiascopic examinations.—"The Keystone,"

Frank Stephen Milbury, M. D., a graduate of the Cincinnati College of Medicine and Surgery, in the class of 1888, died in his 44th year at his home in Brooklyn, N. Y., August 29. He was born in New Brunswick, became a dentist and practiced in Nova Scotia, and afterward in Mexico. He then took an extended post-graduate course in Europe and established himself in Brooklyn. At the time of his death he was a member of the American Medical Association and several other societies, besides being identified with Bedford Hospital and New York Eye and Ear Infirmary.

THE PARIS EXPOSITION.

To the Editor:—I send you this, thinking that a letter relative to medical and surgical matters at the Exposition might be of interest to readers of The Journal.

The exhibits in this line constitute Class 16 in Group 3 of the catalogue, and include not only everything pertaining to medicine and surgery, but also all objects dental and the instruments of the veterinary surgeon. The jury for this class is composed of fifteen members, only three of whom are not Parisians and one of these three is a Frenchman, viz., the noted surgeon, Reverdin, of Geneva. Only one member is not a physician, Leclerc, our secretary, and also a leading local manufacturer of surgical dressings, sutures, etc. But one of the resident members is not a native-born Frenchman, though he has lived in Paris for the past fifteen years. I refer to Dr. de Christmas, who is a Dane, and is physician to the Danish legation here. For the rest, they are men of high standing, being, for the most part, professors to the Faculty of Medicine and members of the Legion of Honor, and all are Fellows of the Academy of Medicine. The president of the jury is Professor Pinard, the obstetrician. Then there are Galippe, chief of laboratory to the Faculty of Medicine; Pozzi, the gynecologist, at present also senator of France; Professor Berger

and Dr. Tuffier, the well-known surgeons; Nocard, the head of the Agricultural and Veterinary School at Alfort; Professors Dentu, Hartmann, etc. The two other members are Eschbaum, of the orthopedic firm at Bonn, for Germany, and myself for the United States. Our work, which is now almost completed, has been most interesting, agreeable and instructive.

All the prominent countries are fairly represented, yet it is much to be regretted that the United States did not send specimens of the products of a greater number of her leading houses, who understand so thoroughly the art of making things coming under this class. There are, in all of our large cities, makers of instruments and of other medical, surgical, dental, or veterinary supplies, who would, doubtless, have done well to show their wares. Such names, for example, as Tiemann, Meyrowitz, S. S. White, and Dohme, to say nothing of many others, do not appear upon this list. In view of these facts it were almost a pity that we have not a national law similar to that of certain of the European countries, known as "Imperial Decree," which dictates concerning by whom the nation desires to be represented in any exposition, and also as to what articles shall constitute the exhibits.

One of the beneficent provision made by the managers of the exposition is that practically all of the objects shown in any given group or class are situated close together in one building; mostly all of those in our group, for instance, can be found in the northwest wing of the structure on the Champs de Mars. A few of the smaller nations, however, such as Greece, Roumania, and some of the lesser South and Central American republics, have these exhibits installed in their government pavilions.

We began our work with the French exhibits, among which we examined examples of the best output of 125 different manufacturers, of whom, not to exceed a bare half dozen are located outside of this wonderful city itself. This means that Paris is not only the medical center of France, but of a large portion of the civilized world, besides. We are, as a rule, fully cognizant of the importance of Great Britain, Germany, and Austria, as regards their medical men, literature, institutions, discoveries, and manufactures, all because of the dominant races which make up the bulk of our 78,000,000 of inhabitants. We have not among us a sufficient number of those whose knowledge of France and whose sympathies with her are great enough to divert

thither a just proportion of the vast armies of American students of medicine which are constantly invading Europe. But we will learn better—we are learning better.

In keeping with the enterprise which is characteristic of Frenchmen of affairs in general, has been that manifested by these exhibitors; and, in comparison with that evinced by other nations it redounds vastly to the credit of the former. By timely notices each one is warned as to what day he may expect the jury to visit his show-case. Our Gallic friend is always ready. If, for any reason, he cannot be present at the appointed time, he comes before the jury in the committee room, and asks for another occasion. Arrived at his space we find a table upon which to place the objects to be examined and chairs to seat the jury. He does not leave to a trusty foreman or other employe the demonstration of the articles on which hang his reputation, but he is on hand in person. He knows just what it is incumbent upon him to show, he knows how to show it, and he knows—as none other knows—how to talk to the point. Moreover, an average Frenchman is more than an average orator. Even the most ardent and unmitigated quack or charlatan among them—and we come across several of these—can almost make something out of worse than nothing.

In another letter I hope to tell of some of the more interesting things we have seen in our particular department. It may not be amiss to state in closing, by the way, that we have seen many models and embodiments of ideas which I have been proudly and confidently regarding as of American origin, but I have heard very few attributed to that blessed source.

Charles H. Beard, M. D., Chicago.

Member International Jury of Awards, Class 16.

Letter to the Journ. of Amer. Med. As.

The following abstract from a paper read by Prof. Coe at Chautauqua, is interesting as expressing the views of a well balanced, intellectual layman on the subject of faith healing.

Chautauqua, N. Y., July 25.—Professor George A. Coe of Northwestern University, to-day spoke to Chautauqua on "Obscure Mental Phenomena." In the course of his lecture he attacked Christian Scientists and faith healers. His claim in general was that no struc-

tural, progressive disease had been or could be cured by the methods used in Christian Science. Professor Coe said in part:

That religion has some relation to health is clear from almost every page in the history of religions. Even within the two great branches of historical Christianity, the Catholic and the Protestant, there lives and even flourishes a belief in the efficacy of relics or of the intercession of saints. Every one of these groups, too—Christian Scientistis, faith healers and adorers of relics—is ready to have its belief judged by the fruits of it in the actual restoration of the sick. These things are not done in a corner; on every hand we are invited to come and see. In fact, the evidence of most remarkable cases under all these systems of belief is so abundant that I shall not hesitate to assume without argument that we are here dealing with one or more curative agencies.

At present let us consider the relation of mental healing to hypnotism. When Christian Scientists and faith healers deny that their cures are wrought by hypnotism, they do not deny that such cures are wrought by suggestion. Suggestion is indeed an omnipresent agency, the most subtle in its ways of working, and productive of effects in many different ways. As a word of warning we must remember that while the organism is easily thrown out of order by suggestion, it is not so easily restored to its normal condition. The positive danger of performing any amateur experiment upon the vital organs is obvious enough.

Again it must never be forgotten that an indispensable part of every safe method in treating disease is competent diagnosis. No one is competent in general to practice any healing art who is not prepared to understand the nature of the complaints for which he prescribes. Who except a scientifically trained physician should be trusted to decide what kind of treatment each difficulty calls for?

It comes about again and again that the patient of Christian Science or of faith healing practice or allied methods of treatment imagines himself to be cured when nothing of the sort has happened. I have seen a faith healer work up great enthusiasm in cripples and in persons partly blind by insistingly suggesting that they were better. Glasses, ankle braces and crutches abandoned—this proves nothing definite. We need to know how often helps have to be resumed. Suggestion does not replace an arm shot off in battle, it does not set broken bones or reduce dislocations; it does not dislodge cancerous

growths or replace it with healthy tissue; it has no way of reaching the brain once in the grip of progressive senile dementia; it knows not how to kill or expel from the system the bacilli that cause so large a portion of disease; nor can it claim to be an antidote for any active poison.

There has been a great deal of hunting for cases of organic disease cured by faith, and what has seemed to be game has started repeatedly, but the amount actually bagged is—one does not like to make a categorical denial of what depends upon the competence of others' observation, but it is safe to say that defenders of faith cure have collected their test cases by methods that lack scientific precision and that supposed proofs have been so uniformly exploded whenever trained physicians have examined them that the medical profession of today is entirely justified in ignoring the new announcement of miraculous cures made from time to time.—Chicago Times-Herald.

"I want you to fit my eyes with a pair of spectacles," said a gentleman of ministerial bearing recently, as he walked up to the proprietor of one of the optician establishments of the twin cities.

"Very glad to accommodate you, sir," was the prompt and business-like reply. "Just step this way, please," and he led the way to a room, on the walls of which were hung charts with letters, charts with parallel lines and charts that looked like clock faces.

"Looking at the clock-like chart there," continued the optician, after he had seated his customer in the examining room and made a few inquiries, "please tell me which lines are the most distinct."

The ministerial looking gentleman designated the lines as requested, and in response to further inquiries gave the optician all the light he could give verbally as to the condition of his eyes.

"Apparently some astigmatism there," went on the optician, after a few more questions, "but I can't quite make out that left eye."

The left eyes of the ministerial gentleman did look a bit off, but its owner said nothing, and the optician concluded a closer scrutiny would be necessary. Accordingly, without more use of the charts, he procured from one of his cases a little mirror with a hole in the center and with this proceeded to throw rays of light through the pupil of his customer's eye, all the while squinting through the little hole to see what he could see in the other's eye. He peeked into the left

eye, then into the right, then back into the left again. While he was doing so something faintly resembling a smile crept over the ministerial's face, but it immediately disappeared and the examination went on, the optician appearing to make little headway, however. Again there was the shadow of a smile on the reverend gentleman's face.

"Well, what seems to be the trouble with it when you look at an said the optician finally. "Can't say that I have ever seen anything quite like it. Does it give you much trouble?"

"Can't say that it does," replied the gentleman of reverend mien "Always got along pretty well with it, with the help of the other."

"Well, what seems to be the trouble with it when you look at an object?" was the next query.

"The chief trouble is that I can't look at an object with it," was the reply. "It's glass."

The optician collapsed, while the gentleman of reverend mien smiled, then grinned, then broke into a hearty laugh.

"It's on me," said the optician, as he proceeded to write an order for the lone eye of the jocular gentleman of the cloth.—From Minneapolis Times.

Lanphaer in the American Journal of Surgery and Gynecology, deals with the ethical propriety of a division of fees between the specialist and general practitioner. His conclusions are that no commission should ever be paid by the specialist for business simply referred or for ordinary consultation. No division of the fee should be thought of when the patient is taken to the specialist for consultation and operation. A division of fee is justifiable and honorable whenever the family doctor accompanies the patient a long distance and the patient can not or will not pay more than traveling expenses and the specialist's charge. It is also justifiable when the family physician is put to much trouble or loss of time in inducing the patient to submit to a specialist's treatment and the patient will not pay the doctor for his services. A division of fee is proper when the specialist operates and the physician assists and attends to the after-treatment. Division of the fee is also justifiable when the specialist and doctor treat the case jointly, as there are a large majority of people who will not pay two bills.

An Act Providing for the Testing of the Eye-Sight of Pupils in the Public Schools.

Section 1. The State Board of Education shall prepare or cause to be prepared suitable test cards and blanks to be used in testing the eyesight of the pupils in public schools, and shall furnish the same, together with all necessary instructions for their use, free of expense, to every school in the State.

Section 2. The superintendent, principal or teacher in every district, some time during the Fall term in each year, shall test the eyesight of all pupils under his charge according to instructions furnished as above provided, and shall notify in writing the parent or guardian of every pupil who shall be found to have any defect of vision or disease of the eyes, with a brief statement of such defect or disease, and shall make written report of all such cases to the State Board of Education.

It certainly is gratifying, especially to those who have been more or less instrumental in bringing this matter before the public, to see that legislatures are beginning to see the necessity of this great preventive work. Its benefits are so easily attained, so inexpensive, unobjectionable, inestimable and farreaching, that the only wonder is that all the States in this country do not follow the example of Connecticut. We trust that this work accomplished may be an inspiration to others.

THE
OPHTHALMIC RECORD

*A MONTHLY REVIEW OF THE PROGRESS OF
OPHTHALMOLOGY.*

VOLUME IX.

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NO. 11. NEW SERIES

ORIGINAL ARTICLES.

CASE OF SUCCESSFUL REMOVAL OF PIECE OF STEEL
FROM THE VITREOUS CHAMBER.*

BY CHARLES A. OLIVER. A. M. M. D.

PHILADELPHIA. PA.

Attending Surgeon to Wills' Eye Hospital: Ophthalmic Surgeon to the Philadelphia
Hospital, etc.

On the 13th of December, 1899, I saw W. B., aged forty-eight years, at my clinical service at Wills' Hospital. Forty-eight hours previously, while cutting a rivet, he had been struck in the left eye with a piece of steel. At the moment of injury, the organ was positioned in such a way as to allow the patient to gaze upward, backward and to the right of his head at the point from which the metallic chip was broken. He stated that he believed that the piece of steel was in the eye, as two X-ray pictures showing the presence of the foreign body in the eyeball had been made by Dr. William M. Sweet of this city.

* This brief article appeared in its original form on the twenty-fifth of May, 1900, number of the 'Bulletins de la Société de Médecine du Département du Nord', published in Lille, France. The present communication is its first appearance in English; mere mention of the case having been made in an X-ray discussion at the February, 1900 meeting of the Section on Ophthalmology of the College of Physicians of Philadelphia.

The patient, who was in bed in the hospital wards when I first saw him, had had atropine instilled and iced compresses applied by the resident surgeon, Dr. Charles Lukens.

Examination showed an irregular linear wound of nearly one centimeter's length extending downwardly and outwardly in the sclerotic just beyond the upper inner ciliary region. The upper lip of the scleral wound was somewhat inverted. The overlying conjunctiva was ecchymotic. The cornea was clear. The pupil was dilated to a six by seven millimeter's oval, with its long axis at ninety degrees. The iris was slightly inflamed, and there was a rather deep hypopyon. The crystalline lens was apparently uninjured, though there were a few faint, just commencing, cortical striae in the lower outer equatorial region, as in the other eye. The vitreous chamber was partly filled with blood and pigment-debris, not permitting any view of the fundus. Vision was reduced to the ability to see to count fingers at two meters' distance in a field which was markedly indentated to the upper nasal side.

The patient consenting to an immediate attempt for removal of the foreign body, he was etherized.

Based upon the clinical conditions seen—particularly the recentness of the injury, the position and the direction of the scleral cut, the relative positions of the lips of the wound, and the diminution of the visual field in the upper nasal side; in association with the assertions of the patient as to the angle of the receipt of the blow, and the presence of a foreign body in the eyeball as determined by the skiagraphs, I determined to introduce an electro-magnet through the scleral wound and make search for the supposed foreign body in the lower outer part of the vitreous chamber.

Employing a long, thin, curved electro-magnet of sufficient strength to lift a heavy bunch of keys in the manner indicated, I was immediately rewarded, without penetrating to any depth, with the impact of the foreign mass on the tip of the instrument. Finding that the chip of metal remained against the inner edge of the wound, I substituted a very broad and quite flat electro-magnet and carried it slightly into the eye at right angles to the length of the wound. I thus produced a broad, gaping rent, through which the piece of metal was delivered without the loss of a drop of vitreous humor.

The mass, which was steel, was eight millimeters long, five milli-

meters broad at its widest portion, and one millimeter through its thickest part. It weighed one-seventh of a gramme.

The evening of the day of operation I telephoned to Dr. Sweet, asking him to let me know in what part of the eyeball he had located the piece of metal. He replied "down and out," thus agreeing with my clinical findings, and proving that his method had independently given the localization of the mass.

In two days' time the wound was healed, and the vitreous opacities seemed somewhat lessened in number. The patient was allowed the liberty of the ward.

Three days later, vision equalled one-fortieth of normal and the vitreous haze had decreased. On the posterior capsule of the lens, up and in, there was a long, triangular area of dense white opacity, which was sharply outlined and apparently isolated.

Two days after this the man was discharged from the hospital as an out-patient.

One month after the accident the eye was quiet and vision remained the same as before.

At present writing, eleven months since the operation, the eye is comfortable and is functioning as well as ever.

Remarks: For several reasons I offer the case for publication. It shows the value of careful perimetric observations in such cases, the accuracy of the Sweet method of X-ray localization, and the advantages of immediate removal of such offensive and dangerous foreign materials as chips of steel from the interior of the eyeball.

As Dr. Collins states, the treatment of headache accompanying the infectious diseases can best be remedied by combating the cause. The treatment of those arising from drugs consists in the discontinuance of those preparations taken therapeutically—mineral or vegetable—proper care, when required by occupation to come in contact with the metals, such as lead, mercury, etc., and the promotion of the elimination of any poison which may be in the system. But, aside from these cases where the treatment is strictly etiological, there are a variety of idiopathic forms which require a special treatment.

MONOCULAR BLINDNESS OF FIFTY YEARS' DURATION; RESTORATION OF VISION FOLLOWING HEMIPLEGIA.

BY GEORGE F. LIBBY, M. D.
COLORADO SPRINGS, COLO.

Mrs. K., aged fifty-four. On July 17, 1900, I was asked by Dr. Charles F. Gardiner of Colorado Springs to see this interesting case, then under his care. The following history was obtained. As a little child the patient was healthy in every way so far as the parents knew, but they noticed that she turned her head to the right to see objects in the right field of vision. Coaxing and punishment alike failed to overcome the habit. The family physician decided, on examination that the right eye was blind, although presenting no external evidence of such condition.

The only illness before puberty was a badly poisoned arm (right), following inoculation of vaccine virus. At the age of twenty the patient was married. Three healthy children were born. Until fifty-three years old she was free from any disease whatever, and by the testimony of husband and neighbors had never manifested any signs of hysteria or other nervous affection, but possessed an even, cheerful disposition, taking much interest and delight in the activities of life.

As to the blind eye, the husband, who is a scientist well endowed by nature and developed by training to correct habits of observation, often tested its vision for both near and distant objects with the other eye well covered; but the patient always declared that she could perceive nothing save the shadow caused by a person passing between her and the window. Several times on getting a cinder in the left eye the patient was quite blind, temporarily.

Six or seven years ago she was examined by an oculist (address unobtainable), who pronounced the right eye hopelessly blind and the left normal. He prescribed presbyopic correction of + 2.50 D. S.

The climacteric began during the fiftieth year, proceeded regularly and terminated in October, 1899. Two months later, while reading, she was suddenly affected by a typical attack of hemiplegia, with aphasia, the left side of the face and entire right side of the body

being affected. Regarding the cause of the attack the attending physician can adduce no evidence of syphilis, atheroma, heart or kidney disease. At the time of the seizure the patient and her husband were living in Göttingen Germany. Dr. Damsch, Professor of Neurology at the University in that city, treated the case. He was unable to explain the restoration of vision, which occurred while the patient was under his observation, and three weeks from the date of the attack. The amazing discovery was made while the patient was rubbing the left eye. She found herself able to see ordinary objects about the room and to recognize people.

Four months from the seizure the vision was still further improved and the aphasia was markedly better, according to statement by the patient and her husband.

At present the general appearance indicates a well-nourished state. The right arm and hand are helpless still, but there is ability to raise the right foot and leg and to walk with the assistance of one person at her side. There is no trouble in swallownig or with the rectal or bladder functions. The special senses are not affected.

The refraction, under $2\frac{1}{2}$ per cent. homatropine solution, is as follows:

O. D. V.=0.3 c.—1.00 D. S. V.=0.6.

O. S. V.=1.0 c.+0.75 D. S. V.=1.0+.

Accommodation:

O. D. Snellen 1.75 c.+2.50 D. S.

O. S. " 0.5 c.+3.50 D. S.

The ocular movements are normal for both eyes, except for convergence at twenty-five centimeters or nearer, when the fixing is done with the left eye. This, it seems, may be explained by the lowered vision and lack of development of the internal rectus of the right eye, together with the age of the patient. The pupillary reactions to light and on convergence are perfect, together with consensual reaction. The tension of the right eye is normal and media clear, save a slight haziness of the vitreous, with a few small floating specks. There is nothing abnormal about the retina or disc, although the temporal side of the disc is somewhat pale and the upper vessels are inchaemic, with pulsation of central vein at its exit. The left eye is entirely normal, save for its low refractive error. The field of vision and color sense are normal in each eye.

The return of vision in this eye after fifty years of blindness is a cause of deep gratitude to the patient, and has been a great diversion to her through the weary months of the first illness she has ever experienced. Perfect health nervously and physically all these years would apparently exclude either organic lesion or functional disturbance; and yet, as there are no evidences of organic changes the result of disease, except for a mild hyalitis present, the only explanation remaining would seem to lie in designating this remarkable case as one of psychic blindness.

Mr. McHardy, ophthalmic surgeon to King's College Hospital and the Royal Eye Hospital (Southwark), has made a forcible complaint of what he terms the unreasonable demands of the London School Board upon the ophthalmic service of the London hospitals. No doubt there is much in what he says. But the public will expect the hospitals to try to cope with the difficulty as far as possible, because the neglect of the eyesight of the young is little less than a national misfortune. Short sight is a common defect in English children, and if neglected the evil becomes permanent and short sight debars the lad from entering the army, navy, police force or railway service. It is therefore an evil of a far-reaching sort, and the School Boards must do their best to meet it. Mr. McHardy holds that the Boards should be prepared to provide a medical officer capable of inspecting, and if necessary of treating, the eyesight of the pupils. If this plan were adopted the school rates of London, already enormously high, would be increased considerably, a fact which will probably prevent any innovation upon such a line.—Philadelphia Medical Journal.

A CATARACT KNIFE OF EXCELLENT SHAPE AND PRO-
PORTION DEVISED A CENTURY AND A HALF AGO,
BY DR. THOMAS YOUNG, OF EDINBURGH,
AND THE KNIVES WHICH PRECEDED IT.

BY ALVIN A. HUBBELL, M. D.

BUFFALO, N. Y.

Professor of Clinical Ophthalmology, University of Buffalo.

ILLUSTRATED.

As is well known, Jacques Daviel, of Paris, in 1752, demonstrated before the Royal Academy of Surgery of Paris, the advantages and practicability of the extraction of the crystalline lens in the treatment of cataract, and described an operation by which it could be done. In this operation, he made a corneal flap downwards by first puncturing the cornea at its lower margin with a semi-curved, triangular knife or as he termed it a lancet-shaped "needle," and then enlarging the opening on each side first by a semi-curved, blunt-pointed knife ("needle"), and afterwards completing the section by scissors (*Mémoires de l'Académie de Chirurgie Royale*, 1753, tome II, page 337) Surgeons throughout Europe were deeply moved by the "invention" of Daviel, and there were some who at once endorsed his principles, but sought to improve upon his method by diminishing the number of instruments.

George de la Faye, a distinguished surgeon of Paris and a member and officer of the Royal Academy of Surgery of Paris, was, perhaps, the first to suggest a single instrument with which to make the corneal incision. In a paper which was published in the "Mémoires" of the Academy, in 1753, tome. II, page 563, he says that he had been led by various considerations to devise this instrument which he "had the honor of presenting last winter (November, 1752) to the Academy." He describes it in this paper as "a species of small bistoury, fixed in its handle, its blade very thin, a little convex on its flat, and twenty to twenty-one lines long and two lines wide at its greatest width. It is edged only on one side, except at its point where the back is also edged, but only for about two lines. The point

and the whole edge have the fineness of the point and edge of a lancet. * * * *

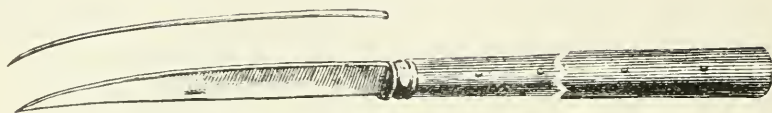


Fig. 1.

The knife of de la Faye. The upper line shows the "convexity" of the blade on its flat.
From *Mémoires de l'Acad. de Chir.* 1753. tome II.

The handle is three inches and nine lines long by four lines in diameter" (see figure 1). Referring to the blade in another place he says: "The edge is very fine so as to cut the cornea cleanly; the blade is slightly curved on its flat so as to keep the point away from the iris in traversing the anterior chamber; finally, the bistoury has a back, because if it were edged on both sides in all its extent, it might wound the upper lid during the operation." In making the incision, the concavity of the blade evidently faced the cornea.

De la Faye actually used his instrument for the first time on the living in June, 1753, as the following quotation shows: "As the season (winter) did not allow me to practice the operation for cataract, but as the students should not be left in ignorance of anything which may contribute to the perfection of the art, in the month of March, 1753, during the course on operations which I am in the habit of delivering in the amphitheatre (of the 'College of Surgery'), I demonstrated the two instruments (knife and cystitome) which are in question, and experimented with them successfully on the cadaver. * * * It was on June 11, 1753, that I performed this operation on six persons." This was done at the Hôtel Royal des Invalides before several noted physicians and surgeons.

Although de la Faye was, perhaps, the first to suggest making the corneal incision with a single instrument, a London surgeon preceded him by about two months, in actually practicing such a method on the living. This surgeon was the distinguished Samuel Sharp, Surgeon to Guy's Hospital, and at one time a pupil of the celebrated William Cheselden. Sharp was a man who was alive to the surgical advances of his time and was in touch with the continental surgeons. Later he was even a foreign member of the Royal Academy of Surgery of Paris. Scarcely had Daviel's operation been made public when Sharp, recognizing its merits, set himself to work to simplify it. He was without doubt in communication with Morand, the perpetual

secretary of the Academy, and it is possible that through him he had learned of the suggestion of de la Faye. Be this as it may, he devised a delicate knife, straight on its flat, somewhat convex on its back, slightly concave on its edge, a little less than an inch long, and at its heel about one-eighth of an inch wide, tapering gradually to a fine point. With this he performed his first operation, April 7, 1753. Between this date and October 22, 1753, he performed nineteen extractions. The incision was made downwards and included one-half of the cornea. His operation is described in papers which he read before the Royal Society of London on April 12, 1753, and November 12, 1753, and which were published in volume forty-eight of the *Philosophical Transactions*, 1754, pages 161 and 322.

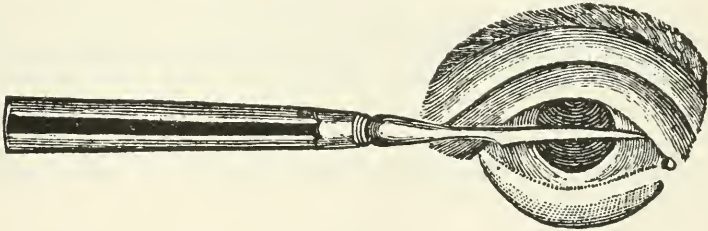


Fig. 2.

Sharp's knife, from original cut accompanying his first paper.



Fig. 3.

Another illustration of Sharp's knife, from tome II of *Mémoires de l'Académie de Chirurgie Royale*, 1753.

His knife is shown in figure 2, which is a reproduction of his original illustration, and also in figure 3.

During the same year, 1753, another knife, straight on its flat, was suggested by Poyet, a young Parisian surgeon (*Mémoires de l'Académie de Chirurgie Royale*, tome II, page 353). It was a double-edged instrument about two inches long, two lines wide at its heel, narrowing slightly towards its point, which was triangular. Near its point it was pierced by an opening for the reception of a thread. Poyet, in operating, made the puncture and counter-puncture with the knife threaded. After the counter-puncture was made,

he disengaged the thread from the knife, and with the thread thus looped into the cornea and held upwards, he steadied the eye while completing the corneal incision downwards. The first two operations which he made convinced him of the "inconvenience" of the thread and he abandoned it. But he continued to urge that with a straight knife like his the iris was less exposed to injury. Poyet's first operations were performed at the same time and place as were those of de la Faye. His instrument is illustrated by figure 4.



Fig. 4.

Poyet's knife, from *Mémoires de l'Académie de Chirurgie*, 1753, tome II.

Joseph Warner, of London, surgeon with Sharp to Guy's Hospital, sought to improve the cataract knife of his associate by constructing a blade which was straight, both on the edge and flat, and less convex on its back than Sharp's except near its end, where it became more sharply curved, thus making the point comparatively obtuse. Figure 5 is a reproduction of the original plate, showing the instrument in position.

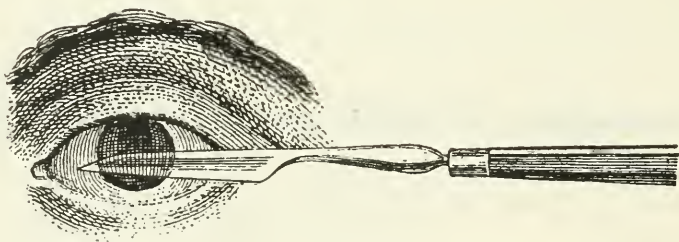


Fig. 5.

Warner's knife, from his *Cases in Surgery*.

Warner's operation was first published in his *Cases in Surgery*, edition of 1754, page 30.

Another corneal knife was devised by Béranger, of Paris, the first description of which, according to A. Stoeber, of Nancy, France, was published in 1755, in the *Mémoires de l'Académie des Sciences*, Tome III, 1755, page 29 (*Description du Procédé Quasi-Linéaire Simple ou Composé*, Paris, 1877, page 137). He also read a paper before the Royal Academy of Surgery in 1757, describing his opera-

tion, and as the reference to the first paper cannot be verified, I quote from the second, which de Wecker republished in *Archives d'Ophthalmologie*, in 1893. In this Béranger speaks of his instrument as "a scalpel, the edge of which is an inch long, and describes a semi-circle of three lines radius. The edge terminates at one end by a very acute point and at the other by a long shank of eight lines, and is mounted on a handle. Besides, the blade is slightly convex on one of its faces and plane on the other." It is "a little wider than the semi-diameter of the cornea," the diameter of the cornea being, as he says, "four to five lines." In operating, Béranger says that the knife is introduced with its convex face towards the cornea, "serving thus very naturally to direct its edge towards the lower semi-circumference of this part." See figure 6.



Fig. 6.

Béranger's knife, from Wenzel's *Manuel d'Oculistique*, 1789.

Such were the forms of cataract knives that had been suggested from 1752 to 1755. In 1756 still another knife was offered which was scarcely noticed at the time, and which had been almost entirely forgotten, although in many respects it was superior to any other that had preceded it. This knife was devised by Dr. Thomas Young, of Edinburgh. Dr. Young was a man of high repute in the medical profession of Scotland, and was for a long time previous to his death, in 1783, professor of midwifery in the University of Edinburgh. He not only distinguished himself in this capacity and as a "man-midwife" of his city, but he also practiced surgery "for a considerable time with much reputation," according to the testimony of Dr. Benjamin Bell, a contemporary of Dr. Young, who published an excellent *System of Surgery* in 1787 (see vol. II, American edition of his work, page 352).

The instruments of de la Faye, Sharp, and Béranger were frequently spoken of during the first thirty or forty years after Daviel described his operation, but that of Young was seldom if ever mentioned. We look in vain for it in the works of Wenzel (*Traité de la Cataracte*, 1786, or *Manuel d'Oculistique*, 1808), or of Pellier de Quengsy, *Cours d'Opérations sur la Chirurgie des Yeux*, 1789), or of Richter (*Treatise on Cataract*, English edition, 1791), all of whom

were supposed to be familiar with the ocular surgery of Great Britain of that period. Neither is it referred to by Ware in his translation of Wenzel's work on cataract, or later by Adams (*Practical Inquiry into the Causes of the Frequent Failure of the Operations of Depression and of the Extraction of the Cataract, as Usually Performed*, 1817), and yet both of these gentlemen were London practitioners and writers of note. Ens refers to it in 1803 (*Historia Extractionis Cataractae*, page 43), and Sprengel, a few years later (*Historie de la Médecine*, French edition, 1815, tome VII, page 64), and so also does A. Stoeber in 1877 (work above cited, page 13). But most writers on cataract from 1756 to the present time are silent in regard to it.

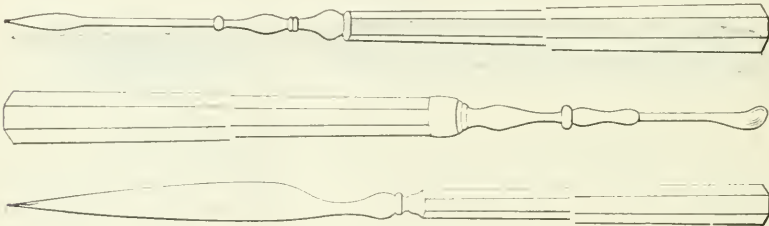


Fig. 7.

Instruments of Young, the knife being at the lower part of the illustration. From the original plate (VII.) published with his papers.

The knife of Dr. Young, as will be seen by figure 7, had a blade whose length was about one and one-half inches (four centimeters), and whose width at the heel was two and one-half lines (five millimeters). From the heel it tapered by very gentle convexities of the back and edge to a very acute point. It was straight on its flat, and its back was blunt. It was mounted on a suitable handle by means of a constricted shank of about one-half inch (twelve millimeters) in length.

This blade was of excellent form, and deserves a better position, historically, than it has occupied, and it is in the hope of restoring it, in part at least, to the recognition of the profession, that I am led to bring it forward at this time. In doing this I venture also to reproduce Dr. Young's original paper, as well as the illustrations which accompany it. I am able to do this through the generous assistance of Dr. William George Sym, a prominent ophthalmologist of Edin-

burgh and the editor of the Ophthalmic Review, who has most kindly copied them for me. The following is a transcript of the paper, and it is found in volume II, page 324, of "*Essays and Observations, Physical and Literary, Read before a Society in Edinburgh, and Published by Them:*"

"Some Observations on the new Method of Curing the Cataract by Extracting the Crystalline Humor. By Thomas Young, Surgeon in Edinburgh.

"To restore lost sight, is recovering one of the most useful of all the senses, and the couching of the cataract, would be one of the most valuable operations, could it always be done with safety; but the bad success, and the dreadful consequences which often attend it, have deterred many good surgeons from performing this operation, and thrown it much into the hands of empyrics.

I have couched but few in the old way, and those with such bad success, that I was fully determined to operate no more on the eyes; nor did the success of the new method performed by the ingenious *M. Daviel*, alter my resolution for a considerable time, till, at the importunity of some of my best friends, I consented to try this new operation. Six cataracts luckily cast up last summer in the Royal Infirmary at Edinburgh, which I extracted in the following manner:

The patient being seated in a chair, with an assistant at his back, to support his head, and keep up his eye-lid, as in the old operation, the operator may stand or sit in a chair, as he finds most convenient. He should keep down the under eye-lid with two fingers of the one hand, while with the other, he takes the small knife (see figure 7) with which he pierces the transparent cornea at the external angle of the eye, near to where the cornea joins with the sclerotica, taking great care not to wound the iris. Run the knife in a horizontal direction across the anterior chamber, and bring it out about the same distance from the white of the eye, as where it entered; then cut that part of the cornea which lies between the two orifices, as much in the form of a crescent as possible; this makes the incision larger, and keeps the cicatrix more off the sight; lift up the flap of the cut cornea with the scoop (see figure 7) or any other convenient instrument; introduce at the same time a common couching needle (see also figure 7), through the pupil, to open the capsula of the crystalline lens, that the latter may come the more easily out. A small aperture generally serves for this purpose; if the lens is of a firm consistence, it often sticks to the point of the needle, so that when the instrument

is withdrawn the crystalline comes along with it; if it does not, a very gentle pressure upon the eye forces it out. The operation may be frequently performed with the knife alone, the capsula of the crystalline being so thin, that, after the cornea is cut, a small pressure on the eye makes the lens come away.

This method of operating is much the same with that practiced by M. Daviel, which you'll find at large in the *Memoirs of the Academy of Surgery*, vol. ii, p. 337. I have followed the example of the famous Mr. Sharp, and shunned the great multiplicity of instruments M. Daviel makes use of, which renders this operation more simple, less tedious, and less dangerous.

I shall next mention the success of each operation in the order they were performed.

1. Robert Laurie, aged about 30 years, was admitted into the Royal Infirmary with a cataract in both eyes.

I operated on the left eye the 23d of July, 1755.

As soon as I had passed the knife into the anterior chamber, he turned his eye so much upwards, that the cornea was quite out of sight; I waited till the eye returned to its former position, when I found the point of the instrument in the iris, which I immediately disengaged, and finished the operation without any other accident. I expected a great inflammation from the iris being touched, but was agreeably disappointed, finding the man recover with little pain, no fever, and the inflammation inconsiderable.

About three weeks after the operation, he could distinguish colors, and large objects tolerably well; but could not bear much light. His eye continued weak and watery for about three weeks more, when he could easily see a pin in the sleeve of his own coat; his eye was clear, but the pupil not quite round, which was certainly owing to the iris being hurt.

2. * * * * was admitted into the Royal Infirmary about the middle of September, with a cataract in the one eye, and the cornea of the other quite opaque.

The pupil of the cataracted eye was contracted to above the size of a large pin head, but quite immovable.

He was visited by several surgeons in town, who were of opinion that the disease was incurable, and that the bottom of the eye was affected, as well as the crystalline lens.

I proposed trying the new operation, before he should be dismissed incurable; to which they very readily consented.

I performed it without any accident, and the man recovered in a few days, without any fever, pain, or inflammation. He was dismissed from the house about a fortnight after the operation, when his eye was quite clear, but the pupil still immovable; and he could only perceive a glimmer of light, which is more than was expected from the appearance of the pupil before the operation.

3 and 4. John Craig, aged about 40 years, was admitted into the Royal Infirmary with a cataract in both eyes, which had much of the milky appearance.

I operated on both eyes the 28th of September, 1755, and nothing extraordinary occurred during the operation, only upon dividing the capsula of the crystalline, a sort of milky liquor came out, and the lens was of a dark brown color. He had a very speedy recovery; six days after the operation, I uncovered his eye; he was capable of distinguishing colors. I looked again into his eyes on the 13th day, when I found his sight still better, and his eyes more able to look at small objects, without complaining.

He was dismissed from the house the 19th of November, when he could read without the assistance of glasses.

6. Agnes Barrowman, aged about 30 years, was admitted into the Royal Infirmary, with cataracts in both eyes.

I operated on the left eye the 26th of October, 1755.

The space betwixt her eye-lids, when raised up, was so small that I could with difficulty see all the cornea, which, in this patient was remarkably flat.

As soon as I had passed the knife into the anterior chamber, she was seized with a fit of coughing, which obliged me to cut the cornea in a very great hurry. The opening in the cornea was but small, which gave me more difficulty in extracting the crystalline than I had in any of the former.

Notwithstanding this unlucky accident, she had a tolerably good recovery; her eye was pained, and somewhat inflamed, for some time after the operation, but never violently. She was dismissed from the house about six weeks after the operation, being then able to distinguish very small objects.

N. B.—Some eyes are more proper for this operation than others; the larger the eye, and the more convex the cornea, the opera-

tion will be the easier. This woman had a remarkably bad eye in this respect; it was small, the cornea flat, and the distance between the eye-lids when open, was very little; perhaps the speculum oculi would be of use to help all these faults while the cornea is cutting, but no longer, for fear of pressing out the vitreous humour.

There was nothing particular in the treatment of these patients after the operation: it consisted chiefly in bleeding, spare diet, now and then a gentle laxative, and cloths dipt in vinegar and water applied frequently to the eyes; they were not confined to their beds above a day or two; and none of them required fomentations.

I do not pretend, from the above cases, to make a comparison betwixt the success of couching, and the new method; this requires more cases than I have had occasion to see.

According to the trials made by some of the French surgeons, which you'll find in the memoirs of the Academy of Surgery, vol. ii, p. 578, the couching was the most successful.

Mr. Morand couched six patients.

3 of them saw distinctly. 3 of the cataracts rose again.

M. le Faye extracted six cataracts in the new way.

2 of the patients saw distinctly. 2 of them saw less distinctly. 2 of them were quite blind.

M. Poyet extracted seven cataracts after the new method.

2 of his patients saw distinctly. 2 of them less distinctly. 1 could distinguish light. 2 of them were quite blind.

Were I to judge from my own experience in both operations, the new method certainly claims the preference; since I have only operated upon six cataracts, and all of them have succeeded, though some were not very promising.

This, I hope, will excite others to make further trials and improvements in this operation.

March 4, 1756."

Thus it will be seen that, while Jacques Daviel, a Frenchman, was the first to "invent" the modern operation for the extraction of cataract, Samuel Sharp, an Englishman, was the first to perform "simple extraction," much as it is done today, incising the cornea at its junction with the sclera by a single instrument, carrying the incision downwards, however, instead of upwards, and Thomas Young, a Scotchman, was the first to give to the profession a commendable knife with which to make this incision.

KERATITIS PETRIFICANS, THE CORRECT TERMINOLOGY FOR RIBBAND-LIKE KERATITIS.

BY GEO. F. SUKER, M. D.

TOLEDO, OHIO.

This condition is designated as "Riband-Like Keratitis, Primary Opacity of the Cornea, or as Keratitis trophica," by such recognized authorities as Fuchs, Ramsay, Noyes, DeSchweinitz, Goldzieher, Darier, Swanzy, von Graefe, Nettleship, and others of equal prominence, is indeed a misnomer. For, surely the term does not convey to the mind of the reader any positive knowledge of the true pathological condition present in the cornea. Secondly, the old term does not determine whether the calcareous condition is a primary or a secondary process in and out of itself, or whether it is the result of a previous inflammatory reaction in the cornea. Thirdly, this term is not distinctive of the gross pathological appearance in the cornea, as the calcareous deposits often appear in isolated spots instead of a continuous band as the former term would suggest. Again, the lime deposits do not always make their appearance in the anterior layers of the cornea as does the deposit in the true riband-keratitis. Furthermore, the riband-keratitis with which we are so familiar, is a deposition of an infiltration of a colloid-like mass and not of carbonate or phosphate of calcium.

The former condition of the cornea is encountered in cases of any age, while the latter is more frequent in the advance stage of life, usually as a secondary manifestation following: glaucoma, chronic chorioidal and ciliary affections, trachoma, or some aggravated corneal complications, e. g., staphyloma, xerosis, or neuro-paralytic conditions. Another distinctive feature of the calcareous depositions or degenerations is their appearance after inflammatory conditions of the cornea have become stationary, or seemingly so, while the ribband-like keratitis makes its appearance during the active disease process in the cornea. Nevertheless, these two conditions bear a close resemblance in so far that they are manifestations incident upon nutritive changes in the cornea. A very characteristic feature

of the calcareous keratitis is its appearance in patients subject to gout or an excess of uric acid in the circulation.

Again, the books are rather dogmatic in stating that the calcareous deposits always appear in the intermarginally exposed cornea. True it is, that this is the usual position, yet they do occur in any section of the cornea, central or peripheral, as recorded cases will demonstrate.

For the above assigned reasons, if for no others, ought we to make a clear distinction between two diseases which show such marked individual differences as do riband-like keratitis and calcareous corneal deposits. Hence, the writer has suggested the term "*Keratitis Petrificans*, or *Degeneratio Calcaria Corneae*" for the latter, a condition wherein we have a distinctive deposit of either the carbonate or phosphate of calcium in the deep or superficial layers of the cornea as a primary or secondary manifestation.

The first term is given the preference because it is of pure Greek origin; secondly, it is concise and sufficiently descriptive of the pathological changes in the cornea.

We are more or less familiar with the calcareous degeneration of the iris, chorioid, retina, optic-nerve, lens, lens-capsule, sclera, and ciliary bodies, because these are not at all rare clinical observations. Yet, such changes in the conjunctiva and cornea are counted among the rarer manifestations of eye diseases.

However, when a calcareous degeneration occurs in any of the ocular structures, we know it to be a secondary process. All such eyes have previously suffered from a severe inflammation, such as glaucoma, cyclitis, or chorioiditis. Probably the only membrane of the eye which develops calcareous changes as a primary affection is the conjunctiva; though even this is questioned. Leber (in 1895) is accredited with having recognized this process in the conjunctiva, calling it "*Conjunctivitis Petrificans*." In this, the conjunctiva is the seat of an inflammation giving rise to a swelling in which numerous opaque white spots develop, gradually increasing in size and finally coalescing. Ultimately these spots assume a calcareous nature. When examined under the microscope, the carbonate or the phosphate of calcium is readily detected. The writer has seen this condition following xerosis conjunctivae, but never as a distinctive primary process. This point might prove to be of interest to those who see many cases of xerosis, whether or not this calcareous condition

is a frequent sequella. No reference to this subject has ever been made by those who are in districts where xerosis conjunctivae is quite frequent, e. g., in the coffee plantations of Brazil and among the negroes of South Carolina.

Up to the present time, no satisfactory solution has been advanced for this lime deposit in the cornea. In fact, this is true for the rest of the body as well. It seems plausible to have an altered nutrition in the cornea or a radical change in the lymph lacunae precede this calcareous degeneration. For, it is prone to follow inflammatory conditions, which seemingly have become quiet. Whether or no an arterio-sclerosis or an atheromatous condition bears any casual relationship to this corneal degeneration is still an open question. There can scarcely be any doubt but that these two conditions do enter largely into the etiological factor.

Though we can not ascribe to the cornea such a primary inflammation as Leber claims to have found in the conjunctiva, which produces a lime deposit, yet the two affections bear such close resemblances that we are constrained to look upon them as being identical, i. e., secondary processes. Certain it is that we must consider this calcareous deposit as a retrograde metamorphosis (in both cornea and conjunctiva):

- (1) Of corneal cicatrices or opacities.
- (2) Of degenerative changes in inflammatory deposits in the corneal interstices.
- (3) Of a long standing pannus thoroughly vascularizing the cornea.
- (4) Of a cornea abused by *argentum nitricum*.
- (5) Of the results of injuries.
- (6) In the sequellae of irido-cyclitis and deep keratitides.

This deposition of lime as a rule occurs between Bowman's layer and the external limiting epithelial membrane of the cornea, rarely between Bowman's and Descemet's layer. It may appear in small spots, rather dots, and thus remain quiescent; or, these spots may increase in size and finally coalesce, giving rise to the characteristic lime plaque. These deposits are of a peculiar hue and light shadings so as to quickly mark them as lime. Furthermore, with a sharp-pointed spud you can obtain the grating so peculiar to chalky deposits. Another distinctive feature is the anaesthetic condition of this given area.

No one particular section of the cornea seems to be an area of predilection. For, these deposits are found as frequently in the periphery as in the central portion. In fact, they occur as often in the two latter positions as they do in the text-book position—"inter-marginal." When these spots increase in size, thus encroaching upon the pupillary area, they materially deteriorate the acuity of vision, if not causing practical blindness.

As these calcareous areas are usually anaesthetic, one must guard against the intrusion of foreign bodies which might set up a secondary inflammation in the remaining clear portion of the cornea thus ruining an useful organ. This danger can be obviated by constantly employing a mild collyrium.

Generally these lime plaques do not cause any irritation in the cornea when they are lodged beneath the epithelium. If, at any time they should make their appearance external to the free surface of the cornea, the movement of the lids over them would cause considerable irritation. However, these plaques are most generally located in the deep layers of the cornea, possibly interfering with vision, but not causing any inflammatory reaction.

When these plaques appear above the surface of the cornea, we must remove them by scraping them off until the level of the surrounding cornea is reached. Should they be deeply situated as above remarked, nothing needs be done with them unless they impinge upon the pupillary area. When this latter condition exists, an iridectomy for optical purposes is indicated. The local applications of remedies are of no service whatever as far as a remedial nature is concerned. As a rule "*nole me tangere*" is a precept to follow in all cases unless irritations exist as above stated. Frequent scrapings are not to be recommended, as they in themselves are prone to cause annoying irritations. Where the plaques are superficial and interfere with vision, the scraping them off will restore the acuity to a certain extent, a slight blurring of vision always remaining. No amount of thorough scraping will remove them for all times. The areas freed from these plaques, will in time become again calcareous, thus necessitating repeated scrapings.

It is interesting to note that the presence of these plaques does not in the least interfere with other operations that happen to be indicated, i. e., cause no delay or untoward healing processes. This is the report of the men who have operated in such stated cases pro-

viding the deposit is in the superficial strata of the corneal tissue. In this particular then it behaves like a gerontoxon.

The lesions for which this calcareous condition may be mistaken are: gerontoxon, dense peripheral cicatrices, xanthlasma corneae, or perhaps opacities. However, this error is scarcely possible if you endeavor to remove particles with a sharp mettle spud as the characteristic grating is immediately detected. Ramsay makes mention of a calcareous deposit in a case of xanthlasma corneae. This is the only case of its kind on record and indeed a very unique one. No report of the case has ever been made wherein both the cornea and the conjunctiva were in a state of "petrificans."

A significant feature of these plaques is their distinct line of demarkation. Each and every spot is clear cut and does not send out hazy prolongations as do all the other corneal opacities. Even while they are increasing in size and tend to coalesce, they remain sharply cut in their outline. So, from what has been said, to err in diagnosis is indeed highly improbable.

Though the writer maintains this calcareous deposit to be a purely secondary result, yet von Graefe reports a case in which it was a primary reaction. He says such corneae invariably give rise to glaucoma. It seems more likely that in the condition to which von Graefe refers, the glaucoma is or has been insidiously established and the calcareous degeneration made an early appearance, thus masking the true primary glaucomatous process. As this deposition of lime salts in any organ is a retrograde metamorphosis, it of necessity must follow some initial inflammatory reaction, be it great or small. In other words, we cannot look upon this manifestation as *sui generis*, but are compelled to look upon it as a *post hoc*. If it should occur as a true primary condition, then the pathologist has given us erroneous conceptions in regard to this kind of degeneration. For, he always speaks of secondary calcareous degenerations and never as primary ones—immaterial as to where they appear. Another reason, though not very weighty, for considering it a secondary process, is that it invariably occurs in the aged, in whom we know a condition below par to be almost a "normal finding." Furthermore, all the cases seen by the writer have occurred in the aged, and each one of them has had a serious ocular lesion, which was apparently quiescent. In all there seemed to have been a marked nutritive interference. The greater number had some severe corneal lesion; a few had intra-

ocular trouble such as glaucoma, irido-cyclitis, and retino-chorioiditis.

From the above we can see that the two conditions—ribband-like keratitis and calcareous degenerations of the cornea—are two distinct and separate manifestations due to different causes and therefore entitled to a separate terminology. As ribband-like keratitis is rather of frequent occurrence its true pathological condition and etiology did not merit detailing in order to establish the status for "Keratitis Petrificans," having been so frequently described heretofore.

In conclusion, the writer wishes to state that in employing the term *Keratitis Petrificans*, we must include the idea of its secondary nature by the "adjective *secundaria*." Hence the full term would be *Keratitis Petrificans Secundaria*; however, this adjective is really superfluous and therefore can be eliminated. At the same time, he desires to thank Dr. de Schweinitz for several valuable references which materially aided in the writing of this paper.

914 Jefferson Street.

W. J. McBride reports several cases of ophthalmic operations under the use of gas and oxygen, the advantages of which he states as follows: (1) The almost absolute safety of the mixture, which is the safest anesthetic known. (2) The rapid induction of anesthesia, the patient being under in less than two minutes. (3) The induction is without incident and the maintenance in the best cases is quite sleep-like; while full recovery occurs in less than two minutes. (4) The absence of after-effect, the patient being able to leave the room in a very few minutes. (5) The eyeball is fixed, the orbicularis muscle is relaxed and congestion can be entirely avoided by the allowance of sufficient oxygen, while there is no retching, sickness, cough, straining or unconscious after-movements causing increased intra-ocular vascular tension. (6) The upright chair or semi-recumbent position on a couch can be conveniently and safely assumed. This method of anesthetization is, for several of the above-given reasons, admirably adapted for consulting-room work.—*Lancet* (London), May 19, 1900.

ABSTRACTS

FROM RECENT OPHTHALMIC LITERATURE.

BY G. E. de SCHWEINITZ, M. D., and C. A. VEASEY, M. D.

Concerning Annular Keratitis.

Grunert (*Klinische Monatsblätter für Augenheilkunde*, supplementary number, 1900) reports seven cases of this rare disease and summarizes the symptoms as follows: There are usually more or less irritative phenomena of the corneal parenchyma accompanied by the ring formation alone, or, in addition, by a thicker central infiltration. This ring formation is always present in the parenchyma and is occasionally so deep that parenchymatous vessels can be seen passing over it. Its shape may be round, oval or irregular. Occasionally the rings may be double or triple, and they may be either closed, or partly open without a tendency to close. There may be a formation of vesicles and a superficial loss of substance, which, however, never tends to deep ulceration. The epithelium over the hazy areas is generally stippled and there may be, in the later stages, slight vascularization. If the latter be present, however, it is never so marked as in vascular parenchymatous keratitis.

The affection was bilateral in nearly half of the cases reported to date and was about equally divided between the two sexes. In a few there was partial anaesthesia of the opaque areas of the cornea, but in none was there involvement of the ureal tract. Neither the disease itself nor the complications associated with it, lead to the loss of an eye, but the prognosis is relatively better if treatment is instituted early. The medicament of most benefit was the yellow oxide of mercury salve. The author thinks the affection should not be described in connection with parenchymatous keratitis, but with herpes of the cornea, or, even better, with keratitis profunda.

Ribband-Like Keratitis. Best (*Beiträge zur Augenheilkunde*, 43 pt. 1900) in the study of a case of ribband-like keratitis, says that the

opacity expresses the reaction of a cornea whose resistance and nutrition has been affected by external influences to which the uncovered portion of the cornea between the palpebral fissure is exposed. The pathological anatomy was found to consist of a new formation of hardened connective tissue beneath the epithelium on account of some disturbance in Bowman's membrane, in addition to the formation of homogeneous organic concretions containing lime salts. The concretions themselves are not primary, but are due to a coagulation-necrosis, which results either from albumin in the corneal lymph spaces or from the constituents of the tissue itself. This coagulation, demonstrable in the form of fine granules, reacting in a manner somewhat similar to fibrin, may, by simultaneous dissolution and increase in the size of the granules, undergo a second change, either in the sense of calcification or homogeneous hyaline degeneration. The micro-chemic examination of the concretions proved them to be albumins in a state of degeneration. They give tyrosin and biuret reaction and are differentiated from the closely allied prostatic concretions by an absence of carbo-hydrate reactions. Among the intra-ocular changes in ribband-like keratitis great stress was laid upon the increase of mast and spherical cells, and furthermore upon the presence of glycogen. The remaining features were only those usually seen in pththitic bulbs.

Complete Examination of a Case of Sympathetic Ophthalmia.

Grunert (*Klinische Monatsblätter für Augenheilkunde*. Supplementary number, 1900.)

Patient was an epileptic, 29 years of age, who had been operated upon for cataract. There was prolapse of the vitreous, and an attempt to deliver the lens with a loop proved unsuccessful. Healing was normal. In a few weeks after the discharge of the patient, and following an epileptic convulsion, the eye became much worse. There was chronic irido-cyclitis with pupillary exudate. In addition there was photopsia, pain and irido-cyclitis in the other, likewise cataractous eye somewhat subsiding after a few days' treatment. During the interim between the epileptic attacks the urine was normal, but immediately after these attacks albumin could always be found. As the convulsions became more and more frequent, albumin was always present and the patient finally died after remaining in a comatose condition for several days.

At the post-mortem, one hour after death, there was found

chronic pericarditis, traces of an old endocarditis, pneumatic areas, acute pleurisy and some healed tubercles. On the left side the kidney was contracted; on the right entirely absent, though the supra renal capsule was normal. In the brain the pia was opaque, and at the left convexity there was a flattening which partially resolved itself into a jelly-like mass at the second and third frontal convolutions of the same side. The substance was almost fluctuating like an area of softening. Microscopic examination later showed this area to be an extensive angio-sarcoma. Large hemorrhages were found not only in the tumor, but also in the surrounding tissue. On removing the brain from the cranium the eyeballs, nerves and chiasm with some surrounding brain tissue were preserved intact.

The microscopical findings of the exciting eye were as follows: The bulb in all diameters was increased in size and the sclera thickened. The vitreous was clear at its posterior two-thirds and fluid. The lens was found in its normal position and only slightly shrunk. (It had been reported extracted by the surgeon who operated.) The anterior portion of cornea was normal except at the limbus, where there was some infiltration and vascularization. The posterior surface was covered with numerous precipitates. The iris was markedly thickened and filled with large heaps of spherical deposits. Its posterior surface was entirely covered with a thick exudate extending to the ciliary processes and filling the anterior portion of the vitreous. Within this exudate, composed of pus cells, was the cataract. In the ciliary body the muscular structure was barely recognizable, the whole being an even mass of granulations. The exudate was filled with pigment granules and mast cells. The choroid was markedly infiltrated and thickened, fully three times as thick as normal, and most pronounced at the posterior portion of the bulb. The retina was mostly detached and adherent to the choroidal exudate. The nerve, and to a lesser extent the sheath, show edema and small cell infiltration. The intensity of the inflammatory process, however, decreased backward and had entirely disappeared at the point where the vessels left the nerve, but reappeared as the chiasm was approached. Here there was thickening and permeation of the pia with small cell infiltration. There was also in the nerve substance an accumulation of cells always deposited around pathologically dilated vessels. It is interesting to note that the inflammatory process was most marked in that portion of the chiasm where the optic nerve

of the sympathetic eye originated. Here the accumulation of cells exceeded by far in size and number all other accumulations excepting in the bulb. They also extended into the tract and into the neighboring brain substance. In the intra-cranial portion of the optic nerve of the sympathetic eye every sign of pathologic change was missing. In the orbital portion, however, there were found here and there a few accumulations of cells. In the bulb the papilla showed pathologic changes similar in character and degree to those found in the exciting eye. The choroid was normal, but the retina showed inflammatory changes around the vessels of the posterior portion. On the anterior capsule there were a few and on the posterior surface of the cornea numerous deposits of exudate containing but few cells. The iris was infiltrated and thickened, and the ciliary bodies and processes contained a few circumscribed areas of round cell infiltration, together with many mast cells. The entrance of the ciliary nerves remained unchanged. The bacteriological examination of more than 500 preparations was absolutely negative.

The author accounts for the papillitis by the cerebral neoplasm and states that its relation to the sympathetic trouble is not positive. The changes in the optic nerves, in the pia, and, above all, in the chiasm, are not to be considered with the other ocular manifestations as the angio-sarcoma, the hemorrhages and the nephritic disease may have been their causative factors. It is very striking, however, that the anterior portion of the sympathetic eye should be so markedly inflamed and yet the choroid remain normal.

The Local Treatment of Scleritis.—Edmund Jansen (*Abstracts Archives d'Ophthalmologie*, August, 1900) after referring to the difficulty of sharply separating the various types of scleritis and episcleritis and stating that he has well nigh given up general medication in the management of these affections, refers to three local measures which have been of service to him, namely: subconjunctival injections of a solution of salicylate of sodium, 2 per cent., massage of the upper lid with the aid of a salve of ichthyol, 10 per cent., and superficial cauterizations with a small Paquelin point. He is not as favorably impressed with the subconjunctival injections as with the others on account of the decided pain which they produce. Massage gave him excellent results, but the greatest amelioration of the disease was obtained by cauterizations. These cauterizations should be superficial in localized episcleritis, but when the malady is less prominent

he makes a ring of pointed cauterizations on the most elevated portion of the lesion around the corneal limbus. Among the general measures which he employed he thinks that salicylate of sodium internally plays a prominent rôle but it is not always satisfactory and its effect is sometimes negative.

(Sometimes surprisingly good effects follow pilocarpine diaphoresis in chronic episcleritis. G. E. de S.)

Concerning Parenchymatous Keratitis as a Primary Manifestation of Ophthalmic Herpes.—F. Terrien (*Archives d'Ophthalmologie*, August, 1900, p. 49) after describing the various secondary ocular manifestations of herpes zoster ophthalmicus, refers to a form of parenchymatous keratitis which appears before all the other symptoms and precedes by several days the cutaneous lesions of herpes and which he believes merits close attention. The case which he quotes in support of this observation was one in which a diffuse parenchymatous keratitis limited to the supero-external portion of the cornea appeared and preceded by about two weeks the skin manifestations of the herpes. The ocular affection was evidently related to a diffuse infiltration of the cornea which appeared from the start and was not consecutive to herpes of this membrane, because the epithelium was respected and at no time were vesicles seen upon the corneal surface. Perhaps the neighboring scleral inflammation which preceded by some days the corneal infiltration might be accused of blocking the corneal circulation and by this means favoring the keratitis. The important point, however, was that the corneal disease preceded by some days the cutaneous manifestations.

Concerning the Use of Abrine in Trachoma.—F. D. Lapersonne and Painblan (*Archives d'Ophthalmologie*, August, 1900) after referring to the introduction of jequirity in ophthalmology by De Wecker and regretting that it has almost been abandoned, give the results of some experiments which they made with abrine and which they prepared in the following manner: A gramme of the powdered jequirity was macerated in 100 grammes of water with some drops of chloroform for twenty-four hours at a moderate temperature. The solution was then filtered and preserved in a Pasteur flask with a few drops of chloroform to prevent the development of microbes. The experiments were made by rubbing upon the conjunctiva of the rabbit a bit of cotton wetted with this solution and also rubbing a similar solution upon the conjunctiva of a patient affected with chronic trachoma.

The healthy conjunctiva and the granulated conjunctiva, under these circumstances, after having been examined microscopically, showed similar lesions, namely, a great quantity of polynucleated and many mononucleated leucocytes. There was also a transudation of serum and secondarily a deposition of fibrinous exudate infiltrated with leucocytes on the surface of the mucous membrane. The experimenters further found that the abrinic inflammation could be checked by the use of an anti-abrinic serum as it has been developed by Calmette, but they realize that in spite of the scientific interest which attaches to this fact that it has no practical application in medicine.

In the treatment of trachoma they have employed solutions of jequirity, a fine powder of the drug and the solutions of Merck. The application of the powder is always painful, produces violent reaction and does not give the best results. The solutions of Merck are uncertain. They prefer a solution of one per cent. of the character for which the formula has already been given and which ought to be renewed every five or six days. After cocainization they rub with sufficient energy the internal surface of the upper lid with a tampon of cotton wetted with this solution. The application is not painful and the patients are not troubled with swelling of the lid and excessive secretion. The second application is made later, at the end of forty-eight hours, and is followed by the formation of a false membrane. Violent reaction was lacking, and in no case have accidents occurred, although they have seen abscess of the cornea follow the use of the powdered jequirity. The therapeutic results which were obtained were analogous to those originally reported by De Wecker. The most characteristic result, in addition to the curing of the granulations was the disappearance of the corneal pannus. They explained the action of the drug by the gradual transformation of the granulations into cicatricial tissue and do not believe that the remedy possesses a specific influence upon the granulations.

THE OPHTHALMIC RECORD.

*A MONTHLY REVIEW OF THE PROGRESS OF
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EDITORIALS.

THE LAW OF DIRECTION.

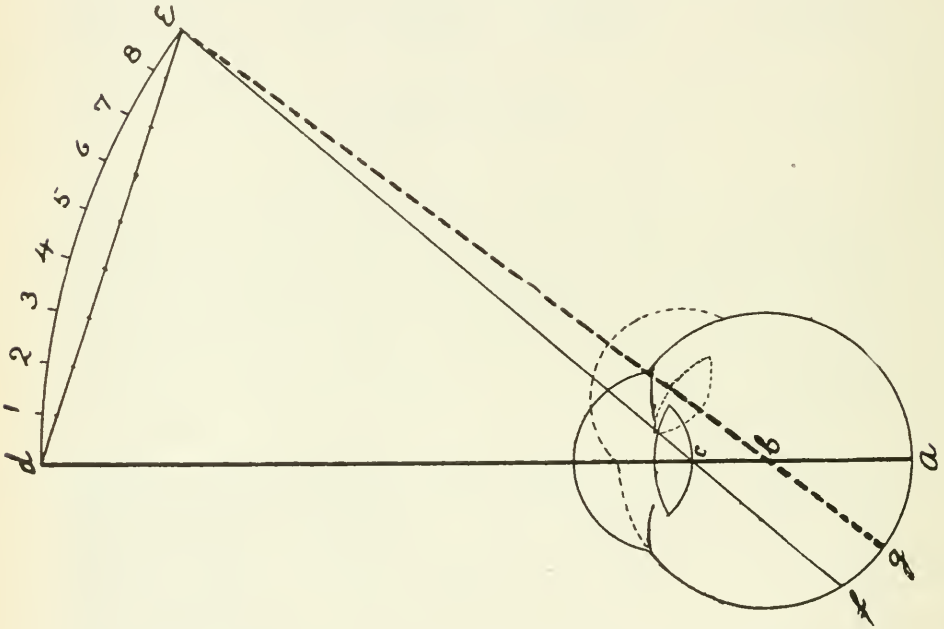
For arguments against "the radius of retinal curvature" theory of direction, the reader is referred to Dr. Stevenson's communication in Vol. 7 of this journal, page 112; to Dr. Wilson's open letter in same volume, page 381; and to Dr. Weiland's contribution in same volume, page 544. For three facts in favor of the theory that "Every Line of Direction is a Radius of Retinal Curvature Prolonged," see the same volume, page 11.

It is not my purpose to answer the arguments of Stevenson, Wilson and Weiland, except to declare that what they say against "the retinal radius" theory, applies with equal force against the Helmholtz "nodal point" theory. It is not against the "retinal radius" theory that Porterfield, one hundred and fifty years ago, first announced it, and that "d'Alembert, Bartels, Brewster and many others" have entertained the same views. Less than forty years ago, a student under a great master in Germany, expressed to his fellow student his doubts as to the correctness of the "nodal point" theory and declared that he believed all lines of direction cross each other in the center of retinal curvature. This student's view was conveyed by another student to the Master whose convincing, argumentative reply was "it is a lie."

Wilson closes by saying, "enough has been said, however, to show that the matter is not quite so simple as you would have us believe, and that the retinal radius theory of Porterfield, even as revived and renewed by yourself, is altogether too imperfect a key

to unlock the mystery." The very simplicity of "the retinal radius" theory, as contrasted with the "nodal point" theory, is an argument in favor of the former, for all the laws of nature, when properly understood, are simple.

It is the purpose of the writer, in this editorial, to present an argument in favor of "the retinal radius" theory which he believes to



be convincingly conclusive. The accompanying cut fully shows what he would teach. The macula is at *a*, the center of the retinal curvature at *b*, the nodal point at *c*, the point of primary fixation *d*. The line *da* is the visual axis, passing, necessarily, through both *b* and *c*. To the right of *d* is *e*, another point in space. Whether we connect *d* and *e* with a straight or a curved line, there can be no point between the two that has not a corresponding retinal point. LeConte has very beautifully and very truthfully said, "that, for every retinal point, there is a corresponding spacial point." A line of direction leading from *e* to the retina, according to "the nodal point" theory, must pass through *c* and would strike the retina at *f*. For simplicity of illustration let it be considered that there are just eight points on

either the straight or curved line leading from d to e . There must be the same number of corresponding points on the retinal curve, and a straight line must connect the retinal and spacial points. If fixation is to be changed from d to e the visual axis must pass first to 1, then to 2 and so on until it gets to e . When the visual axis gets to 1 it replaces the visual line which extended from 1 to the retina, while the axis was in the primary position. The same is true when the axis passes to 2, 3, 4 and so on to e . At e it will coincide with the true visual line that extended from e to the retina when the axis was in its primary position. The cut shows that it cannot do this, if "the nodal point theory" is correct. It can do it if "the retinal radius theory" is correct. According to the former the line of direction for e must be ecf when the point fixed is d ; according to the latter, the line of vision from e must be ebg . The visual axis in the secondary position, fixing e , coincides with the former visual line, ebg , but not with the false line ecf .

The illustration can be studied mathematically, for the arcs de and ga are arcs of concentric circles. They consist of an equal number of degrees, for they are opposite equal angles.

G. C. SAVAGE.

CORRESPONDENCE.

THE OPHTHALMOMETER AND ITS VALUE IN DETERMINING THE TOTAL ASTIGMATISM OF THE CORNEA.

Editors of the Ophthalmic Record:

Dear Sirs—The writer wishes to take exceptions to some of the editorial in the August issue, namely, that the "ophthalmometer is an unconscionable liar at times." It is an old saying that a poor workman is always complaining of his tools. It is a common experience to learn that certain instruments are condemned because they do not accomplish what is expected of them in the hands of the operator. Now the ophthalmometer is only a telescope adapted to the purpose of observing the cornea of the eye and the principles upon which it is constructed are well known. When properly constructed it is acted upon by light in the same manner under the same circumstances every time—in fact, its working is as unalterable as the laws of light upon which it depends. Therefore the ophthalmometer should never be denominated "an unconscionable liar at times," and as it can not defend itself, having served the writer in a very acceptable way for the past ten years, he proposes to say something in its behalf.

The older astronomers could hardly believe the instrument when observing Mars, when the earth is passing that planet, for Mars appears to go back on its course and makes a track something like the figure of 8 horizontal placed. This illusion is not due to the telescope, but to the condition of the person at the eye-piece. Again astronomers in observing the eclipses of the satellites of Jupiter found they did not occur in the different positions of Jupiter to the earth just at the time the mathematicians had determined they should, and something seemed wrong, but it was not the telescope, for in the elucidation of this discrepancy one of the most beautiful scientific discoveries was made, namely, that light travels 185,000 miles per second. In all the conditions in which the telescope has been used in astronomy if there has been any discrepancy in the observations made it has been due to other conditions and not to the instrument itself.

The same is true of the ophthalmometer when properly constructed and used it measures the anterior surface of the cornea and indicates the least and greatest meridian of its curvature, if any exists,

and therefore the amount and axis of astigmatism of the cornea. This is all that should be claimed for the ophthalmometer, and as a very large part of the astigmatism of the eye exists in the anterior part of the cornea, it gives accurate information which is of great value to the oculist. If it is expected that this accurate information of the condition of the anterior part of the cornea determines the lens to correct the existing manifest error, then one must be constantly disappointed and might denominate the ophthalmometer "an unconscionable liar at times."

At the Seventh International Medical Congress, held in London in 1881, Javal exhibited his first model of the ophthalmometer. As he read off the amount of corneal astigmatism to those whom he tested, the writer remembers how incredulous some of the members of the ophthalmological section looked when he gave the amount of their astigmatism, and its axis. "Why," says one, "Javal says I have one and a half dioptries at ninety and I am only wearing one-third of that amount." Another says the instrument indicates that, "I have a half of a dioptre at ninety and I am wearing the same amount at one hundred and eighty," and so it went on, and the incredulity increased rather than diminished as Javal attempted to explain the workings and use of the instrument to some of the members.

They wanted an instrument that would tell exactly the amount of astigmatism to be corrected to make the patient comfortable. Anything short of that did not seem to interest them. When asked why they used a mydriatic to ascertain the total ametropia if only a certain portion of the total ametropia was to be corrected, they said it gave a better basis to prescribe lenses. Then Javal said an accurate knowledge of the total corneal astigmatism gave a better basis for the correction of the astigmatism. The writer was favorably impressed with the ophthalmometer from the first, but as Javal said he proposed to improve it and reduce the price, which was \$300 then, he waited until the 1889 model came out. The 1889 model was an excellent instrument, but the writer made it over so that all there was left of it to recognize it was the telescope. In this experience many of the improvements embodied in the beautiful instrument now manufactured by Meyrowitz were suggested and impressed upon him as necessary for a first-class instrument. Every instrument has its limitations, and when these are known it should not be condemned for what it never was intended to do. The name ophthalmometer is misleading

in so far as it implies that it is an instrument to measure the whole eye. Its name should have implied that it was confined to the measurements of the cornea and Keratometer would have designated it much better. The ophthalmometer does all that its originators claimed it would do, and in this respect it speaks the truth, the whole truth and nothing but the truth.

As to the claim that the ophthalmometer does away with the use of a mydriatic in the fitting of glasses, the writer thinks this shows rather too much enthusiasm for the instrument.

In a very large number of asthenopes treatment is necessary in order to accomplish what can be done for them, and in this treatment mydriatics play an important part and they never should be neglected whenever they are indicated.

With the skillful use of the ophthalmoscope, retinoscope, optometer and the trial lenses in addition to the use of the ophthalmometer the writer has very seldom seen much change made in the lenses to be given after using a mydriatic.

The writer deprecates the teachings, too frequently promulgated, that the fitting of glasses correctly should be obtained in a certain way or accomplished by an instrument or by a combination of instruments; for it leads to unsatisfactory results, the same as it does to practice medicine in any of its departments by isms and pathies, and certain set rules.

The examination and treatment of the eyes necessary as a basis for the scientific adjustment of lenses to relieve errors of refraction and accommodation of the eyes of asthenopes is a very important part of the practice of medicine, for it occupies more than half of the time of the oculist and therefore should be a part of the practice of medicine, and no one should be allowed to do it unless he is a graduate in medicine and has studied specially to prepare himself for the work. The optician has a right to sell all kinds of optical goods, but he has no legal right to pretend that he gives the proper professional skill with it, for he does not possess it any more than the apothecary does when he sells medicine. The cases are parallel and should be treated so by law. There will have to be a good deal of pioneering work done even in the medical profession before this becomes an accomplished fact.

There seems to be a super sensitiveness, however, among a large number of oculists about the absolute necessity of using a mydriatic

in every case in order to ascertain the total amount of ametropia as a basis upon which to prescribe lenses. They imply in their tone and manner that if one does not use or advocate the use of a mydriatic in every case of refraction of the eye one is playing into the hands of the opticians. This was made manifest at the ophthalmological section of the A. M. A. Meeting at Atlantic City last June.

Now, like all questions, there are two sides to this one.

The opticians can use a mydriatic, and they do frequently use mydriatics in the fitting of glasses and if they find it is for their interest to use mydriatics they will use them more and more, for if not allowed to do so by law they can employ a physician to apply the mydriatic. In fact physicians will send their patients to opticians because they employ them to use a mydriatic for them while they fit the patient with glasses.

So that so far as the opticians are concerned the writer does not see the propriety in this sensitive position assumed by so many oculists.

Again there are some persons who will not have a mydriatic used in their eyes and many others cannot afford the time necessary to have it used. Would the advocates of the use of a mydriatic in every case turn these persons away?

The fact is the examination of the eyes for the purpose of properly fitting glasses to relieve asthenopia is a complicated one—one that requires the highest skill of the physician as an ophthalmologist and when he understands all the factors that enter into the problem he alone should be the judge of what method to pursue to accomplish the best possible results to all concerned.

E. E. HOLT.

MEYROWITZ AND THE PARIS EXPOSITION.

Editors of the Ophthalmic Record:

Dear Sirs: The October number of the Ophthalmic Record has just been placed upon my desk, and upon looking it over I find among other articles, one on page 534, which refers to the Paris Exposition, and is signed by Charles H. Beard. He states therein: "Such names for example as Tiemann, Meyrowitz, S. S. White Dental Co. and Dohme, to say nothing of many others, do not appear upon this list."

We did make an exhibit at the Paris Exposition, and were fortunate enough to receive two medals, one for the improved Haab eye magnet, and another in the Electrical Department for a tapping device which we exhibited there. We would not have taken notice of this sentence had our name not been mentioned as being absent, when we took particular pains to be represented there.

E. B. MEYROWITZ.

[NOTE.—Since Dr. Beard's original report was not made directly to the *Ophthalmic Record* we do not hold ourselves responsible for its contents. Editor.]

By taking photographs through the lenses, in similar conditions to those of the lens in relation to the eye, Ostwalt has discovered that judiciously selected menisci or planoconcave glasses are far preferable to the ordinary bispherical lenses for divergent glasses for distant vision. Instead of the biconcave, therefore, corresponding periscopic glasses should be prescribed, either meniscoid or planoconcave or asymmetrical biconcave. He gives a curve to guide the oculist in ordering divergent periscopic glasses and the manufacturer in making them. For convergent glasses the meniscus bulges too much to be practicable, particularly for patients after operation for cataract. But even in this case the symmetrical bispherical shape is not so favorable as the asymmetrical biconvex, which, with direct vision, gives the minimum of sphericity error, the front side having a radius of curvature six times larger than the other.

REPORTS OF SOCIETIES.

SAN FRANCISCO SOCIETY OF EYE, EAR, NOSE AND THROAT SURGEONS.

September meeting. The President, Dr. Henry L. Wagner, in the chair.

Dr. R. D. Cohn presented a case of *Chorio-Retinitis, with Posterior Cortical Cataract*, in both eyes, and asked the opinion of the members as to the treatment indicated.

Dr. L. C. Deane said that he had seen the case with Dr. Cohn about a month back, and examining it carefully found a certain portion of the choroid destroyed. The portions remaining appear to be in fair condition. While Dr. Cohn states that the man is gradually losing his vision, Dr. Deane did not think this was due to any progressiveness of the choroiditis. In cases where the progressiveness has ceased, he used electricity. The best electrode is one made of some malleable metal bent in the exact shape of the eyeball so that it would not touch the brow or cheek bone. The negative electrode is placed at the back of the neck.

Dr. F. B. Eaton said he had always been accustomed to treat such cases with mercury and the iodide to the extent which they could stand.

The President said the electric treatment was new to him. He thought iodide the better treatment, and would not trust to electricity.

Dr. Deane thought that Dr. Eaton referred rather to cases of the acute form of choroiditis, and the mercurial and iodide treatment was the correct one in such cases. The electric treatment is indicated in cases which have become chronic and quiet.

Dr. Redmond Payne referred to the use of subconjunctival injections of sublimate as used in Paris. He thought the treatment in certain cases is a good one.

Dr. Cohn said he would act upon all the suggestions offered and would give mercurials, as well as the galvanic current a trial. He

expected to accomplish very little with either, and with the President considered the prognosis bad.

Dr. F. B. Eaton presented a case of *Suspected Sarcoma of the Choroid* in a man aged about 45. The sight had begun to fail five months ago in the right eye, and during the past two months had decreased so rapidly that it was difficult for him to see his way, vision being excentric upward. There is an extensive detachment of the retina below and to the inner side, but neither by ophthalmoscope or oblique illumination is a tumor visible. The tension is considerably subnormal, being about —2. The sight of the left eye was lost twenty-five years ago, there being extensive anterior staphyloma of the sclerotic and cornea, the sclerotic being much thinned. In the right eye there is also great thinning of the sclerotic, but no ectasia. Dr. Rosenthal had seen the patient soon after the beginning of the trouble, and the appearance of the fundus of the right eye indicated a sub-retinal growth.

Discussion. Dr. Deane would ask Dr. Eaton what suspicion he has that the case is one of sarcoma. If it is, it is not advisable to remove the eye, since the left is entirely blind. If it is one of detachment of the retina rest, etc., are indicated. He did not see a great value in making a differential diagnosis.

Dr. Eaton said that the suspicion of sarcoma is founded on the early examination made by Dr. Rosenthal. The differential diagnosis is very important to the patient. If sarcoma, the eye should be enucleated, as it is blind; he would not weigh it against the man's life.

The President suggested that a carefully taken skiagraph might show a growth if present.

Dr. Cohn thought the appearance of the detachment pointed to a sub-retinal tumor. He thought that an exploratory puncture of the sclera in the region corresponding to the detachment is indicated.

Dr. Payne had gained the impression with Dr. Rosenthal that the retina is smooth and well defined anteriorly. It has not the appearance of detachment from other causes than a tumor.

Dr. Payne presented a case of *Retro-Bulbar Injury of the Optic Nerve*. Six weeks before, the patient, a man aged 45, was struck with some heavy object on the outer side of the right orbit. The tissues were lacerated down to the bone, but the bone was apparently intact. One week after the accident, when first seen by Dr. Payne, the right eye was absolutely blind. There was marked chemosis of

the conjunctiva. The iris appeared normal, but did not react to light. Its associate reaction to light is normal. The media were normal, and the fundus also was normal. Movements unimpaired. There was slight tenderness on pressing the globe backward. All the injured parts have now cleared up, and the bare perception of shadows has been regained. For the past two weeks the papilla has been getting white, and presents the typical appearance of optic atrophy. Dr. Payne thought there was an injury of the nerve within the orbit between the optic foramen and the entrance of the central artery into the nerve.

Discussion. Dr. Eaton said that he had lately a similar case. A man was hit on the side of the head, and the eye became immediately blind, and later complete optic atrophy was found. This is always taken as an evidence that there is a fracture through the optic foramen. He could not conceive of an injury of the nerve between the optic foramen and the eyeball that would not show some other form of inflammation.

Dr. Payne thought the absence of early changes in the retinal blood vessels excluded injury of the nerve in the foramen, as in that case there would have been pressure upon the ophthalmic artery which is transmitted with the nerve.

Dr. Redmond Payne read a paper entitled, *The Question of Prognosis of Glioma of the Optic Nerve as Compared with that of Glioma of the Retina*. The literature of the subject shows great confusion and confliction of opinion. The clearest classification of optic nerve growths is as follows: (a) Those springing from the dural sheath are Sarcomata. (b) Those springing from the pial sheath are Endotheliomata. (c) Those springing from the neuroglia are Gliomata. In both general and special classifications true glioma is indicated as a benign tumor. There is but one exception to this rule, viz., glioma of the retina, which is very malignant. In the opinion of nearly all pathologists primary glioma of the optic nerve, springing from the neuroglia as it does, should be regarded in the same light as glioma affecting the brain cord, and cranial nerves, where it is conceded to be a benign tumor, and dangerous only on account of the pressure it exerts. The question arises: In what particular respect does glioma of the retina so differ from glioma in other parts that when it attacks this organ its benign character is entirely changed to the clinical picture of a malignant sarcoma?

Quoting several authorities, Dr. Payne concludes that glioma of the retina appears to be malignant in exactly the same manner that sarcoma is malignant—that is, that the cells, or toxins from the tumor, are conveyed through the blood current to distant parts. Moreover, glioma of the retina need not necessarily extend back along the nerve to invade the cranium, but is malignant and becomes metastatic in exactly the same way as sarcoma of the choroid. The preponderance of evidence on the part of pathologists favors considering glioma of the retina as a round-celled sarcoma, and it would be better for clinicians to abandon its designation as a glioma.

Discussion. Dr. Cohn considered that Dr. Payne is correct in refusing to consider his case of optic nerve tumor as unfavorable. Since clinically retinal glioma is a malignant growth, whereas according to the majority of reports primary glioma of the optic nerve is benign, corresponds to the fact that histologically the two types are dissimilar to the benign character of primary optic nerve tumors in general. Vossius of Giessen goes so far as to say that recurrence is rare even after incomplete extirpation.

We give the following a place for the reason that dormiol would seem to be a safe and reliable hypnotic for use after cataract extraction, at which time sleep is so important:

Dormiol—Peters has used dormiol for the past nine months in various conditions. It consists of one molecule of chloral, combined with one molecule of amyleuchydrate, and is an oily, colorless fluid, of a specific gravity of 1.24, a camphor odor, and a cooling taste. It has been used in organic and functional nervous diseases, and in other affections in which insomnia is a prominent symptom. It is given in ten per cent. watery solution or in gelatin capsules. It is agreeable to the taste, and no bad effects are noted on the heart, kidney, bladder, etc. In eighty-four per cent. of the cases a deep sleep is produced. It is specially useful in functional neurosis. The initial dose is gr. viiss., increasing to gr. xv.—(Munchener Medicinische Wochenschrift, April 3, 1900) Philadelphia Medical Journal.

NEWS ITEMS.

*Personals and items of interest should be sent to
Dr. Frank Allport, 92 State St., Chicago.*

Masselon deplores the fact that the Jequirity method of treating trachoma has lost many followers in the last few years, especially in Germany. He reminds us that the agent should be used only in those cases where the granulations are unaccompanied with marked secretion, and that it should be avoided where there is any suppuration. It is a remedy which exerts its action particularly upon the cornea, hence it is indicated in pannus and sclerosing cloudings of the cornea. The remedy should always be freshly prepared, and should be pulverized and applied to the palpebral conjunctiva with a camel's hair brush just as we apply calomel. The lids should be well everted and approximated, so that the cornea is protected. The powder is allowed to remain in contact with the lids for two, three or even five minutes, and is then brushed off with a cotton mop soaked in a boric acid solution. If the reaction is not sufficiently strong the application should be repeated. But it is much better to get the desired reaction after the first application, as the reaction is less intense with every repetition of the agent, and one pronounced attack of jequirity ophthalmia is more apt to do good than several weak ones.

Ocular Headaches.—W. A. Brailey says while the great majority of headaches are of course independent of the eyes, it is a matter of general acceptance that ocular errors produce headaches, though by no means in all cases. Muscular errors are the most important class concerned in their production. Accommodative movements are bound up with a great number of ocular headaches. As a general rule, the larger the ocular error the less the effect produced on the head, the reason being that a great defect of accommodative power leads to its abandonment, the patient seeing as best he can without it. Low degrees of hypermetropia and hypermetropic astigmatism are often causes of headache; so is a moderate inequality of refraction, especially is astigmatic. Another potent factor in headaches is the

tendency to binocular vision, and here we have another rule—the stronger the tendency to binocular vision the more headaches produced by an error of the recti and obliqui muscles. Ocular headaches are most frequent between the ages of ten and forty-five years; women are the greatest sufferers, and Americans appear to be more affected than the English.—The Medical Press, August 15, 1900.

D. Webster and E. S. Thompson report the case of a man aged fifty-six years, who in January of the current year began to have difficulty in seeing with his left eye. He was treated for "cold" without benefit. Three months later his eye began to swell, and an oculist found all the symptoms of acute glaucoma. Myotics failed to give relief, and as the tension of the eyeball threatened permanent loss of sight, iridectomy upward was done under cocaine and suprarenal extract. Immediately after the excision of the iris the whole pupillary area was obscured by blood, which also spread itself over the anterior surface of the iris. He remained in the hospital a period of eighteen days, during which he had treatment with a view to getting rid of the blood in the anterior chamber, but without effect. The hemorrhages were renewed as fast as the blood was absorbed, and the anterior chamber was always from a quarter to half full of blood. His urine was examined and found to be loaded with albumin and with casts of various kinds. His diet was regulated accordingly, and he was treated locally and internally, but still unsuccessfully. Two weeks later, inasmuch as all perception of light was lost, and the eye remained painful and inflamed, enucleation was performed. Some bleeding followed a few hours after the operation, but was controlled by pressure. He was discharged in about ten days with the orbital cavity in good condition and the other eye unaffected.

Power of the Eye.—"We often hear," writes Hiram M. Standley, "people say that they can merely by a steady gaze affect a person at a distance, who is not looking at them, and some say that they are able to make one sitting in front turn the head in this way. Mr. Bell in his 'Tangweera' mentions this feeling when he says, 'Presently I felt as if some one was looking at me, and raising my head I saw a large puma standing ten yards away. To the physiologist it may seem uncalled for to investigate a manifest absurdity, but it has at

least a practical value to explode a common error by direct experiment. I asked a young man, who is very confident of his powers, to stand unknown to A behind a bookcase and look through a carefully concealed peep-hole. I gave him the best opportunity, placing A about four feet from the hole directly facing him, and I engaged A in mechanical writing. To the young man's confessed disgust and irritation he was unable to disturb A. My few experiments were negative in results. However, it may be that telepathic influence is exerted under certain conditions, and experiments with twins and others constantly en rapport, especially when under emotional stress and at critical junctures, might be worth trying. If there is nervous telepathy, this is perhaps as simple and common a form as any. If disturbance arose subconsciously the test would be that the tracings from an instrument, to show nervous conditions, should show large fluctuations coincidently with the times when the agent regards himself as successful."

The adjourned meeting of the Granite State Optical Association was held at Brown & Burpee's parlors, Manchester, N. H., on the evening of June 5th. It was a well-attended and enthusiastic meeting, the presence of out-of-town members being particularly noticeable.

It was voted to co-operate in the defense fund movement started by the New England Association of Opticians, by paying each year an amount from the treasury equal to one dollar for each member until said fund had reached the amount of \$500. A resolution was passed as follows:

That opticians should have a building at the Pan-American Exposition in Buffalo next year which is adapted to the exhibition of everything in the optical line and to the promotion of education. First, education of the public as to the proficiency of up-to-date opticians as refractionists, and second, education of the profession by lectures and discussions held twice or more a week, after the manner of a summer school or institute.—"The Keystone."

Optical Palace at the Paris Exposition.—The "Palais de l'Optique" at the Paris Exposition contains every famous discovery within recent years in the science that treats of light and vision. The great

attraction, of course, is the wonderful telescope—already described in the Keystone. The palace is composed of a number of rooms; the public is conducted from one to the other, and in each there is an official who gives the necessary explanation of the wonders we behold.

We are shown into a darkened room, where upon a kind of stage we see luminous draperies floating gracefully in mid-air. And it is only when the light is turned on that we discover that a woman has been dancing whose draperies have been impregnated with a chemical substance that renders the material phosphorescent, thus causing a strange optical illusion. The principle that each sound has its corresponding color due to a known number of vibrations, is illustrated here by an organ on which a melody is played which causes the electric lights of different colors around the room to become incandescent each time certain notes are struck. Thus we have flashes of green, blue, white, red and yellow, and sometimes three and four together, in the case of full chords.—“The Keystone.”

The Perception of the Blind.—In the Doctor's Magazine for July is an article by Frederick Boyd Stevenson giving an account of certain inmates of the Illinois Industrial Home for the Blind, who, though totally blind, possessed the faculty of recognizing objects, to a certain extent, without the apparent aid of the other senses. Thus, one could tell when he was approaching a tree or a curbstone, and could even recognize the different individuals in the room. But if he was expecting to meet persons he could not tell whether any one was in the room or not. Similarly, if the electric light was turned on unexpectedly he was aware of it, but if it was announced before hand he could not recognize the difference. Attention or expectation seemed to destroy the peculiar perceptive faculty possessed by the individual, which seems, therefore, to depend somewhat on the untampered exercise of all the powers of unconscious sentience or of some special as yet unrecognized faculty called into action by the deprivation of sight. This last is what is most readily assumed, but whether correctly is the question. Stevenson adopts this view and quotes some reported facts of somnambulism as being at least suggestively explanatory. Just how perceptions reach the conscious centers is not always clear, and there may be possibilities as yet unthought of. The case of the perception of light through the nose

reported a year or two ago is in point. It hardly seems necessary, however, to admit more perhaps than a sharpening of the unconscious sensory celebration which we utilize in every movement and function, but which in the full use of our senses may be called into action. This may not be an adequate explanation, but it suggests itself as being as reasonable as any. The perception of the blind is a subject not yet fully exhausted by the psychologists.—Journal American Medical Association.

Specialism.—This paper is the report of the committee of the American Academy of Medicine in regard to specialism, the general points of which are that it is not only unavoidable but is desirable, and that it is proper for the physician to seek to perfect himself in the line of his greatest ability even to the neglect of other fields of practice. The specialist may practice directly, or indirectly through consultation, and in his ordinary practice he ought not to be an exclusionist. In his consultation practice the specialist stands in a different relation to his fellow physician from that of other general practitioners in consultation. He is rather a coadjutor than a consultant, and should follow the requisites of the family physician and not interfere with treatment until desired to do so. If a specialist limits his study to a particular branch because his aptitudes for that are of greater service to his profession, and carries into his limited practice the ethical principles of a doctor and gentleman, he can not be a cause of discord or trouble. When the physician should begin to limit his practice cannot be settled as a rule. If his specialty requires operative skill he must begin early, but if he does not have actual experience in general practice he will fail to realize the importance of many things and be too much of an exclusionist. The report also takes up the subject of advertising, and holds that the first object of the physician should be the service to humanity, and next to this his duty to himself to make a living, but this order must not be reversed. Any method of advertising which only seeks to inform the public that the advertiser is ready to be of service, is admissible. The careful application of these principles will demonstrate the true character of any act on the part of the physician which calls the attention of the public to him.

Abstracted by the *Journal American Medical Association* from the Bulletin of the American Academy of Medicine.

According to "The Keystone," the organ of the jewelry and optical trades, the opticians are "organizing" all over the country. A number of abstracts from these society reports are here given:

The annual meeting of the Iowa Optical Society was held in the Savery Club Room, on June 20th and 21st. The attendance was very satisfactory, sixty members being present at the opening session, and more arriving later. The work of the first day's session consisted largely of practical demonstration of optical instruments.

In the course of his address, entitled "Points for the Opticist," Secretary J. C. Clark of Sioux City said: "Today the optician is getting in the way of some who think they are the only ones entitled to bread and meat.

"Section 2581 of the statute relating to the practice of medicine in the state of Iowa, declares an itinerant physician to be a physician practicing medicine, surgery or obstetrics, or professing or attempting to treat, cure or heal disease, ailments or injuries by any medicine, appliance or method.

"Through the phrase 'appliance or method' they intend to search the 'opticians.' I have a letter from the secretary of the State Board of Medical Examiners, in which he states I am clearly violating this law, and subject to fine and imprisonment, because I advertise to furnish glasses that relieve headache; and under the same construction, if I furnish a cork leg, a crutch, a cane or an invalid's chair, which are all appliances for the relief of ailments, I would be violating this law.

"In regard to the present law, I do not think they could convict, and it was clearly the intent and purpose of the law to apply to the medical profession, and they could not twist it around to mean differently than originally intended; but that they may attempt it is probable from the letter written me, and shows their disposition to do so."

Dr. William B. Meany of Louisville, Ky., writes an interesting article for the "Indian Medical Record," published in Calcutta, upon the "Dangers Which Lurk in the Schoolroom; How Safeguards May Be Easily Provided." The principle involved in his article is an endeavor to surround school children with the means of pursuing their education without injuring their eyesight. It is strange that in an article of this kind, the Doctor says nothing about the enormous amount of work that has been done in this country with reference to

the examination of school children's eyes by school teachers. This work is so well established in this country at the present time that it would seem advisable for those writing upon subjects of this nature for foreign periodicals to endeavor to inspire other countries than our own with the desire to carry on the same class of work. Dr. Meany deals principally with the necessity for hygienic school buildings, proper lighting of school rooms, character of desks, vertical handwriting, proper blackboards, print, etc. Probably the most valuable suggestion in his article, however, is the necessity for the appointment or election to school boards of men and women capable of framing rules and laws that will be advantageous to the health and welfare of the scholars. If this could be accomplished, a long step in advance would be made. School boards at the present time are frequently made up of politicians, often of the most unsavory character, men who have no education themselves, and who know absolutely nothing of the necessities of school life. Dr. Meany suggests that applicants for school boards should pass something in the nature of a civil service examination. In this recommendation he will certainly receive the indorsement, not only of the medical profession, but of all those who have at heart the best interests of the public school system.

Hospital Abuse.—That the abuse of the privileges intended by hospital authorities only for the worthy poor is not confined to any state or country is amply shown by statements made in an address delivered by Thierry (*Lancet*, July 28, 1900), at the First International Congress on Medical Ethics held recently at Paris. So rapidly is the use of hospitals by those who can afford to pay for medical attention increasing that it has been declared that, in spite of all efforts to the contrary, the time will come when bread and medical aid will be given gratuitously to all who apply, and that the time is not far distant when the medical practitioner will be a paid functionary of the state. The following instances of hospital abuse are cited: That of a jockey who was earning \$5,000 a year and went to a hospital to be treated for a sprain; a lady who was able to pay for her journey from America in order to obtain advice at the same hospital; a cashier in a commercial house earning a salary of \$4,000; a young lady from Russia who was operated upon gratuitously at a hospital and then went for her convalescence on a journey to Italy; a celebrated singer who

wanted the hospital surgeon to come to her own house because she did not like to go to the hospital, and who strongly objected to paying any fee whatever. Further, of about fifty thousand births that occur annually in Paris, eighteen thousand take place at public expense. It will thus be seen that unless the predictions made are to be verified, some steps will be necessary to curtail an abuse that has already attained enormous proportions. The remedy proposed is that clerks or janitors at hospitals should, in addition to taking the names and addresses of patients, make inquiries as to their means of subsistence. An inspector should then institute an investigation for the purpose of verifying the statements made. The very least that can be done under present conditions is to ask each applicant for gratuitous treatment whether he can afford to pay, or to inform him that the gratuitous service of the hospital and dispensary are only for the worthy poor. The individual should be permitted to decide for himself if he wishes to be made an object of charity.—New York Medical Record.

Limitations of Physical Methods in the Investigation of the Physiological and Psychical Examination of Sight. F. W. Edridge-Green.—The author refers to a former paper in which he showed why it is not possible to correctly ascertain color perception if we ignore color names. His views on the perception of color are stated as follows: Light acting on the retina liberates the visual purple from the rods and a photograph is formed, the cones and optic nerve-fibers conveying the impression to the brain. He thinks that it has been shown that this visual substance can be used up by exercise of the sight, and mentions experiments for the demonstration of this. He believes the shortening of the spectrum is due to some defect in this visual substance; the visual substance, being deposed by light, sets up, by chemical, electrical or some other physical action, impulses which are conveyed to the brain by cones and optic nerve-fibers in the retina. The whole impression being brought to the center of memory, different portions, color forms, size, luminosity, etc., are conveyed to the mind through distinctive perceptive centers. In the case of color the different perceptive centers are only able to distinguish six different points of difference in the spectrum, which really presents millions. We, therefore, have for normal sight the hexachromic theory, which agrees with the fact that both blue and violet

have been demonstrated to be primary. It also, he believes, explains the degrees and variations of color-blindness. Assuming that the perception center is smaller, fewer points of difference are seen. The phenomena of contrasts is explained by the view that color being a point of difference this becomes more marked on comparison. In addition to other points raised, the following appear to him as objections to the so-called physical methods of ascertaining the color perception of individuals: (1) The varying absorption of light by the media of the eye, which affects the variation of the color curve without in any way affecting the real color perceptions of the individual. (2) Hyperesthesia as to certain colors that exists in certain individuals. (3) Variations in the subject's ideas of color. He believes we must be very careful in examining a person by physical methods to see that we do not obtain results that are physical, chemical and electrical phenomena. Psychical phenomena when they exist cannot be measured by the balance and rule, but must be gained by direct evidence from the mind itself.—Abstracted by the *Journal American Association* from *London Lancet*.

Prof. J. C. Wilson of Philadelphia gives the following classification for the etiological causes of headache:

1. Reflex Irritation—a, the eye; b, the nose; c, the teeth; d, the ear; e, the reproductive organs.
2. Toxemia—a, infectious diseases; b, autointoxication; c, drugs (opium, alcohol, quinine); d, poisons (lead, tobacco, tea, coffee).
3. Disturbance of Circulation—a, congestions, 2, anemia; c, arterial changes.
4. Neurosis—a, epilepsy; b, hysteria; c, neurathemia.
5. Organic Disease—a, syphilis; b, meningitis, etc.

Dr. F. Windscheid of Leipsic, in an article on headaches, states that in no ailment must the casual indication be so closely adhered to as in headache. Consequently, in outlining the treatment for headache as given in the above classification it will not be possible to deal with each class.

Sloyd as Applied to the Blind; Remarkable Results Obtained at Raleigh, N. C.—The term sloyd embraces many useful forms of hand-craft, such as work in wood, metal, leather, cardboard, as such occupations as brush-making, coarse painting, straw-plaiting, basket-

making and book-binding. The chief aim in sloyd teaching is to inculcate a love of bodily labor on the part of the children of workmen, and also to give them, by means of it, the capacity to use their hands.

The application of the sloyd principles to the education of the blind has been the work of Miss Anna S. Lagergren in the Blind Institute at Raleigh, N. C. The work done is by a system that works from the known to the unknown, from the easy to the difficult, and from the plain to the more complicated, in a correct methodical succession. After a teaching experience of twelve years with normal children, Miss Lagergren came to the United States from Sweden. Two years ago she was induced to take up the idea of adapting the sloyd method of instruction to the blind. Difficulties that seemed insurmountable were encountered and overcome. When the pupils under her instructions complete the prescribed course of sloyd education, the work they are taught could be performed no better by persons having the sense of sight unimpaired. The marvelous delicacy of touch that seems to be characteristic of the blind makes it possible for them to cut, plane, dovetail, miter and join wood in frames and other forms so that surprising results are attained.

Not long ago Miss Lagergren gave an exhibition of the prowess of her pupils, some thirty-seven in number, all of whom were totally blind. After a practical demonstration of the wonderful skill in dainty woodwork, the guests at the reception given at the Raleigh Institution were invited to compete with the blind sloyd artisans. They took the places of the students, with the result of turning out some productions that were certainly fearfully if not wonderfully made. The sloyd-instructed blind could, out of the rough wood, make a finished cylinder; they could cut and fit it with appropriate tools, so that a towel-rack resulted as a finished product. They could make complete picture frames. A blind piano-tuner having had the benefit of such instruction finds his powers enlarged. He can mend breaks and damages in the woodwork of the piano he has for repair, replace the keys if need be, and otherwise accomplish his work satisfactorily.

The blind pupils sharpen their own tools, and seem no more liable to cut themselves than are other workers. It is a noteworthy fact that children usually inattentive have not only become attentive in sloyd work, but have been able to transfer this power of attention to other subjects as well. According to Miss Lagergren, the applica-

tion of sloyd instruction to the blind was not considered when the system was organized and formulated at Naas, Sweden, in 1875. Its pioneer application was timidly made at the North Carolina Institution for the education of the Deaf and Dumb and Blind, both white and colored.

The general principle of the treatment of corneal ulcers, of which Tennent gives the various types, is to begin treatment, especially in acute cases or in strumous children, with a mercurial. Find out the cause. In children and most adult cases internal medication is more important than local measures. Mercury has the widest application internally, and next to it tonics and reconstructives. The local measures consist in: (1) Preservation of cleanliness; (2) relief of pain; (3) application of mildly stimulating remedies; (4), scraping with an application of stronger stimulants and antiseptics; (5) cauterization.

The first annual meeting of the Minnesota State Optical Society was recently held in Minneapolis, at the West Hotel. Papers were read by Prof. Granger of Rochester, Minn., on "Hypermetropia"; S. B. Millard, Litchfield, on "Success of the Organization," and G. A. Snell, Minneapolis, "Prospective View of the Organization." Following the business meeting there will be a banquet. S. B. Millard will be toast-master. The officers of the association are: President, S. B. Millard; first-vice-president, H. M. Hitchcock, Redwood Falls; secretary, G. A. Snell, Minneapolis; treasurer, C. A. Hoffman. There are forty-one charter members, and it is hoped to bring the membership up to seventy-five at this meeting.

A regular monthly meeting of the executive committee of the Pennsylvania Optical Society was held at 128 South Eleventh street, Philadelphia, on Tuesday, June 12, 1900.

Arrangements have been made to hold the annual meeting on Tuesday, September 18th, and President Martin reported that one of the leading oculists of Philadelphia had consented to deliver a lecture on the "Appearance of the Fundus of the Eye in Different Diseases," illustrated by lantern slides specially prepared for this lecture. The lecture will be delivered at two o'clock on the afternoon

of the annual meeting, and to this lecture every member of the association will have the privilege of inviting one friend.—“The Keystone.”

Michel has studied six personal cases of pemphigus of the conjunctiva, and concludes that systematic investigation of the mucous membranes and skin will usually disclose indications of pemphigus in all cases of adhesion of the conjunctiva not to be attributed to any evident cause, such as the action of caustics, trachoma or diphtheria. Pemphigus of the conjunctiva may appear at first in one eye, and become bilateral later. The prognosis is almost invariably bad. The process continues a progressive course as in other localizations. Boricized vaselin with cocain, or a plastic operation is usually annulled by the continuation of the pemphigus process.

The British Medical Journal of June 17 says:—Professor Gustavo Pisenti, of the University of Perugia, has lately had a thrilling experience in extracting a cataract from a powerful lioness about three years old. The animal was placed in a suitable cage in the middle of the menagerie, and the first difficulty was the administration of an anaesthetic. The intervals between the bars of the cage were filled up with cotton wool, and a large packet of gauze impregnated with chloroform was placed in the cage, the door of which was then closed with a shutter. In about a quarter of an hour a reconnaissance was cautiously made, and the illustrious patient was seen lying stretched out, apparently in condition of deep coma. She was then dragged out of the cage, bound and gagged. She was next placed on a table, but before the operation could be begun she suddenly awoke, and struggled violently, rolling on to the floor, where the medical men “with admirable coolness, but not without intense emotion which might easily be seen in their countenances,” held her down while the animal’s head was wrapped in a towel steeped in sulphuric ether. The lioness, however, managed to free herself from the gag, and partly from her bonds, and gave a roar which made the majority of the spectators beat a hasty retreat. But the ether overcame her, and Professor Pisenti with great pluck dragged her into the cage again, where the anaesthetic coup de grace was given by means of another packet of gauze steeped in chloroform. The beast’s

head was pulled out through the door of the cage and securely held in position. Professor Pisenti then operated with brilliant success. We have no doubt that the Professor had a more "serious time" than Artemus Ward had in getting into the uniform of the days of his youth, and we congratulate him heartily on having escaped a counter-operation by his formidable patient. A curious feature of the scene was the excitement produced among the other animals—zebras, bison, leopards, wolves, hyaenas, monkeys, etc.—in the menagerie, who all inhaled some portion of the anaesthetics with which the air was saturated.

Blepharitis Due to Demodex Follicularosum.—Dr. T. C. Ard of New York, in a report on ophthalmology and etology presented this topic. This acarus is found most frequently in the sebaceous glands of the face, without producing disease, yet it no doubt causes blepharitis by its presence in the follicles of the eyelids. The cilia fall out and itching is a prominent symptom; in suspected cases microscopic examination should be made and if the demodex is found, a 35 per cent ointment of balsam Peru will rapidly effect a cure.

Propagation of Blenorrhoea Neonatorum.—On this phase of his report, the Doctor cited DeWecker, who explains that the direct lodgment of gonococci within the conjunctival sac is next to impossible, so tightly closed are the lids of the child during labor. The outside is soiled and as soon as the lids are opened the infection would not be difficult. The length of the incubation period proves his assertion. It is three or four days and never less than two; in direct transmission, it would be twenty-four hours.

He spoke also of Elschinig's explanation of this association as hepatic disease leading to cholemia and jaundice impairs the secreting capacity of the conjunctiva. This leads to increase in the xerosis bacilli in the conjunctiva and the latter germs bring about desiccation, cornification and fatty degeneration of the epithelia. Thus the avascular cornea goes to necrosis and ulceration. If pathogenic bacteria are present they may develop in the wound with possible general infection; if absent, the affection is benign in character.

Animal Extracts in Ophthalmology.—Dr. Ard pointed out that Lagrange has been using a solution of vitreous humor of an ox in sterilized glycerin, and after maceration a filtrate is prepared for use

by the mouth or subcutaneously. The remedy was used in cases of escape of vitreous in cataract operations and detachment of the retina. Improvement followed but might have been spontaneous.

Instillations of Antidiphtheritic Serum Into Eye in Diphtheritic Conjunctivitis.—Mongour observed that during an epidemic of this trouble antitoxin when given subcutaneously was successful as regards the general results, but that several children lost their sight. The next series of cases, seven, was treated by direct instillation of the serum into the sac in conjunction with the other injections. He was successful in every way.

From the *New Jersey State Medical Society*.

Involvement of Eye and Ear in Cerebrospinal Meningitis.—Reference is made to the epidemic form of meningitis. Edema of the lids and conjunctiva may occur either early or late in the course of the disease, and may occur by simultaneous invasion of the orbital tissues and meninges, or by extension through the superior orbital fissure. Involvement of the motor nerves is more common; this involvement may be due to irritation or may be truly paralytic. Conjugate deviation is sometimes present. Nystagmus is rare, photophobia common, especially so when general hyperesthesia is present, xerosis of the cornea, corneal ulcers, herpes, as well as infiltrations following exposure of the cornea. The iris is usually dilated, partially due to increased pressure. Iritis, simple or accompanied by involvement of the ciliary body and choroid, is sometimes found. The choroidal inflammation is frequently of a seroplastic nature, eventually becoming purulent. Involvement of the choroid may be due to metastasis. The optic nerve may be attacked by direct infection, extension, or metastasis, an optic neuritis being found in the majority of cases, and to this complication the loss of sight in a large proportion of these cases is due. Deafness resulting from epidemic cerebrospinal meningitis does not increase after the subsidence of the disease; the hearing is often eventually improved, if the labyrinth alone is involved.

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NEW SERIES

ORIGINAL ARTICLES.

THE EFFECT OF CONVERGING PRISMS UPON OUR NOTIONS OF SIZE AND DISTANCE—AN EXPERI- MENTAL STUDY.

BY DR. ALEXANDER DUANE,
NEW YORK.

In the September and October numbers of the RECORD, Dr. Verhoeff and Dr. Lippincott have presented some interesting considerations upon the physiological effects due to converging prisms. These considerations, however, are mainly theoretical, and, while they are entitled to much respect, the question is one that ought to be settled experimentally. I have accordingly undertaken a re-examination of the matter from an experimental point of view.

My original experiments made eleven years ago, soon convinced me that to the great majority of observers objects seen through converging prisms appeared both smaller and more remote. I then promulgated the following hypothesis which I take from my (unpublished) notes dated Sept. 7, 1890.

"To account for the apparent minimization and recession of the object seen through converging prisms.

"The object when first seen is very indistinct owing to the great accommodative effort instinctively made with the convergent effort. In order to remedy this indistinctness, the accommodation is then relaxed,

so far as can be done with the convergence still maintained. But, as we always associate relaxation of the accommodation with recession of the object looked at, the object now looked at through the converging prisms appears suddenly to recede and hence also to look small.

"This hypothesis is supported by the following facts:

"1. The recession and minimization are not constant and, as far as my own experience goes, are developed suddenly and as a result of an attempt to see clearly." I might have added that they are also most pronounced when the object is seen most clearly and especially when, owing to an extreme relaxation of accommodation of this kind, the object appears of normal clearness.

"2. They are not affected by the application of concave lenses.

"3. They do not occur when no attempt at convergence is made, i. e., when also no accommodative effort is made, and we see two separate images."

It will be noted that this explanation bears a considerable resemblance to that promulgated afterward and quite independently by Dr. Verhoeff. I was led to abandon it because I found that the phenomena in question were still present when the accommodation was completely paralyzed with atropine. This, to be sure, is not a conclusive objection to the accommodative theory, since we know that the accommodative *impulse* may still persist when the ability to perform accommodation has been abrogated by a cycloplegic.

Since then I have taken the phenomenon as a sort of matter of course in my examinations and have made no regular notes of its occurrence, although satisfying myself by inquiry from time to time that patients as a rule actually do find that objects appear smaller and more remote when seen through converging prisms. Such observations, convincing as they are to myself, are naturally not available statistically; and to add to this, the notes of my original observations have been lost. Hence it has seemed advisable to make some renewed examinations, the conditions of which, furthermore, should be precisely defined.

To begin with my personal experience. The result of a very great number of experiments, continued over a long period of time and made under all sorts of conditions, has been as follows:

(a) The striking and apparently the *primary* effect produced when I look through a converging prism is that the object looked at always appears smaller than normal: and the greater the amount of convergence

employed the smaller it looks. This is true for all kinds of objects. For example, the diminution in size is specially marked when the object looked at is a small round ball on a stick or a round spot one or two inches in diameter. It is also pronounced when the object is a simple line either vertical or horizontal. It is very marked for near objects, *i. e.*, those from one and one-half to three feet away, is less pronounced but still decided for those twenty feet off, and is equally or more marked for objects still more remote; *i. e.*, from fifty feet to a mile or more distant. Thus with a twenty degree prism a three-eighths-inch ball held at arm's length looks reduced to half its real size. A candle at sixteen feet looks perhaps three-fourths of its actual length. The windows across the street and a cupola on the sky-line half a mile off seem reduced by perhaps a third, and the moon high up in the sky looks only half as large as it is. The stars seem much closer together, so that well-defined constellations like the Great Bear or Cassiopeia look considerably smaller.

With this diminution in size there is very *little distortion of form*—practically none if the object looked at is comparatively small, so as to occupy but the center of the field of view.

(b) Again, an object seen through converging prisms in almost every instance looks more remote—and with strong prisms very much more remote—than normal. This appearance of recession, however, while generally marked, is evidently a composite affair, being mainly dependent upon the convergence, but being also influenced by the effect of projection and other circumstances. Thus, while a near object always looks smaller and generally seems much more remote when seen through the prism, it sometimes seems to be at its true distance or even nearer, depending upon the nature of the background or of adjoining objects. Again, a candle placed in an adjoining room and twenty-five feet from the eye looks far away when the doorway through which I see it is wide open, but this apparent remoteness disappears as soon as the doors are partly shut, so that the sides of the doorway come into view through the prism and influence the perspective. Per contra, a very distant object, like a cupola projected upon the sky-line, looks very remote, the apparent recession here being heightened, it would seem, by the interposition of a series of objects between it and the eye. And when the effect of this kind of perspective is eliminated altogether as in looking at stars high up in the sky, this apparent recession may disap-

pear. In fact, in one observation of this sort the constellations, while looking very much smaller, seemed to be actually brought nearer to the eye.

With me at least, the *direction of the gaze* seems to have an effect upon the apparent distance of objects seen through the prism. The houses across the street, for example, look far away, but the street itself, when I look down upon it from a third story window appears raised up toward me, although the men and everything else in it look much smaller than natural. So, too, the floor at my feet seems raised toward me when viewed through a converging prism.

The experiments show that for myself at least the appearances produced are not due to the prismatic distortion that Dr. Lippincott suggests as their cause. He ascribes the apparent change in the size of an object to the distortion that it undergoes—this distortion being due to the fact that in converging we look more obliquely through the prism than when not converging. This explanation, however, does not accord with my experience. For

(a) If I look at an object with a converging prism and the object consequently appears small and remote, this effect is not altered if I rotate my head so that my gaze no longer falls obliquely through the prism.

(b) Again, the mere fact of looking obliquely through a prism does not produce the phenomenon in question. If I hold a prism of thirty degrees before one eye and rotate the prism as I will, the object seen through it narrows and widens and becomes bowed and tilted, but is not altered in height and does not consequently appear smaller in all its parts than the image seen by the other eye, nor does it appear more distant. If I then converge with the same prism so that the two images snap together, the object on becoming single appears suddenly *smaller in all of its dimensions*, appears *more remote*, and at the same time seems *almost undistorted*.

(c) Furthermore, if with a thirty degree prism before the left eye I look at a three-eighths-inch ball held at arm's length, and gradually converge my eyes, so that the two images approach each other, I find that when the two are very near together, the image seen through the prism has undergone no appreciable distortion (in spite of the marked oblique way in which I am looking through the prism), and that *both* images are diminished in size and equally so. The diminution in size of the

image seen through the right eye is certainly not due to prismatic distortion, since there is no prism before that eye; and the small size of the left eye image cannot be due to it, either, because, though there is a prism before the eye, it produces no perceptible distortion.

(d) Lastly, the recession and the diminution in size are as marked with a small round *spot*, a simple *horizontal line*, and a simple *vertical line*, as with the parallelogram with which Dr. Lippincott experimented. It is hardly conceivable that the recession and the reduction in size can be ascribed to a laterally acting distortion in these cases. Such an explanation seems particularly inapplicable, when the object is a vertical line or when, as in the case of one of the constellations, it is a figure formed of shining points connected by imaginary lines.

Again the phenomena here noted are *not due simply to the blurring of the image*, as Dr. Lippincott suggests. With me the most marked reduction in size and particularly the most marked recession of the object occur when the object after a preliminary period of indistinctness gets to look perfectly sharp and clear; when, for example, I look at a test-card across the room and after struggling awhile with my accommodation see the No. 20 line distinctly. The letters of this line, previously blurred, now look clear, but very small and distant.

Moreover, the effect as to size and distance is not altered when the spasm of accommodation generated by the converging prism is compensated for by adding a concave glass that renders the object quite distinct.

It may further be noted that the effect is the same whether one eye alone or both eyes simultaneously are covered with prisms.

To confirm these results of experiments made upon myself, I have made the following examinations upon others, varying the conditions as much as possible, so as to observe the phenomenon in all its phases:

Case 2.—H. D. Age 34. Emmetropic. Objects seen through converging prisms look smaller. Cannot be certain about their distance.

Case 3.—H. P. Age 36. Myopia 6 D. For all ranges, far and near, objects seen through the prisms look smaller and further off.

Case 4.—Barbara A. Age 10. Emmetropic. Marked convergence-insufficiency temporarily relieved by exercise with prisms base out. With 35 degrees prism practically no accommodation; with 47 degrees a little only. Distant objects appear somewhat more remote, but of natural size.

Case 5.—Anna M. Age about 25. Hyperopia 1.50 D. with 0.75 D.

of astigmatism. Under homatropine with prism of 22 degrees or more objects look far off but unchanged in size.

Case 6.—Miss S. C. M. Age 42. Myopia 1.75 D. with astigmatism 1.50 D. Slight convergence-insufficiency. With prisms of 35 degrees, slight accommodation; with 57 degrees, more. Says that distant objects look somewhat further off, and that they would look further off still if she did not keep their actual distance in mind. Their size is somewhat reduced, but this is not as marked as is their recession. Near objects seen through prisms look very much further off than natural.

Case 7.—Helen S. Age about 27. Hyperopic 0.50 D. Slight convergence-insufficiency. With prisms up to 50 degrees uses hardly any accommodation even from the outset; with prisms of 56 degrees slight accommodation. Convergence soon trained up to 69 degrees. With prisms below 35 degrees little or no effect upon the apparent distance or size of objects. With 37 degrees near objects look very much smaller, but their distance is unchanged. Sometimes with 35 degrees and with 37 degrees prisms notices that distant objects look smaller and further off, sometimes the size and distance of the objects appear unaltered. But a very distant object (a boat upon the water a mile and a half away) looks decidedly smaller with 35 degrees prism. With 50 degrees prisms both moderately distant and very near objects appear smaller and further off, and the effect is heightened when still stronger prisms are used. After looking awhile at a near object she makes a mental correction of its apparent diminution in size, and sees it of its natural dimensions.

Case 8.—Mary F. Age 14. Myopia 2.25 D. With prism of 13 degrees exerts little or no accommodation. Objects across the room appear slightly smaller and somewhat further off. One month later with prisms of 23 degrees finds that distant objects look smaller and more remote; near objects look very small and slightly more remote than natural.

Case 9.—Dr. E. C. Age 40. Slight hyperopic astigmatism. With prism of 30 degrees objects across the room appear decidedly smaller and more remote.

Case 10.—Mrs. A. B. Age 38. Hyperopia 2 D. With prisms of 30 degrees objects across the room appear of their natural size but more remote.. On another occasion with the same prisms and exerting a slight amount of accommodation, she finds that objects at sixteen feet

look smaller and more distant than they actually are. With the accommodation completely relaxed by homatropine, she says that objects across the room seen through a prism of 20 degrees seem of their natural size but further off, and when prisms of 28 degrees are used the objects look still more remote.

Case 11.—Annie Gr. Age 19. Mixed astigmatism of 4 D. Examined without her correcting glass and exerting little or no accommodation, she says that with prisms of 24 degrees objects at sixteen feet look smaller and either somewhat further off or at their true distance. Near objects, if anything, appear nearer. With 30 degrees, using slight accommodation, she says that distant objects are much smaller. When the accommodation is abolished by homatropine, distant objects with prisms of 20 degrees and 28 degrees appear of their natural size and distance. On following day, with her refraction corrected, but manifesting considerable spasm of accommodation, says that distant objects look smaller, but not further off (once indeed she said they looked nearer). The patient, however, was not very intelligent, and I could not feel certain as to the reliability of her answers.

Case 12.—Annie G. Age 18. Hyperopia 1 and 1.50 D. Marked convergence-insufficiency. With 14 degrees prism she exerts no accommodation and there is no change either in the apparent size or distance of objects across the room. With 22 degrees prisms, objects across the room appear of their natural size but slightly further off. With 29 degrees prisms she uses 1 D. of accommodation. With these prisms distant objects appear further off (more so than with the 22 degrees prisms) and also slightly smaller; near objects appear much smaller. There is no difference in the effect when the vision is cleared up by adding a -0.75 D. glass. On another occasion with moderate converging prisms, distant objects appear small and remote, near objects appear small and at their true distance from the eye. With 34 degrees, exerting slight accommodation, she says that distant objects look small and very remote. On another occasion convergence practiced up to 52 degrees. Objects look small and far off.

Case 13.—W. A. L. Age 29. Mixed astigmatism of 0.75 D. Muscles practically normal. Overcomes prisms, base out, with difficulty and marked sense of effort. Examined with the refraction uncorrected and with prisms of 27 degrees, he exerts 0.75 D. of accommodation. A small white ball at eighteen inches looks diminished in size and appears

nearer, while the size and distance of objects across the room are not affected. These results are not affected by clearing up the vision with a -0.75 D. glass. With the accommodation completely relaxed by homatropine and with the refraction corrected, he says that a 20 degree prism causes the near object to look smaller, while neither the size nor the distance of a distant object is certainly affected, although possibly it looks nearer.

Case 14.—Annie K. Hyperopia 1 D. With her accommodation completely relaxed by homatropine and with her hyperopia corrected, she says that prisms of 30 degrees make a candle a foot or two away look very small, but if the candle is carried a few feet away or to twenty feet, it looks of its natural size, but more remote than it actually is.

Case 15.—Tilie G. Age 19. Hyperopia 1 D. With a prism of 18 degrees a small white ball at eighteen inches looks smaller and nearer; with prisms of 32 degrees it looks still nearer and very small. With the 18 degree prism a candle sixteen feet off seems further away and slightly smaller (the recession being particularly noticed); with prisms of 32 degrees the candle looks very small and very far off. With the accommodation completely relaxed by homatropine and with her refraction corrected, converging prisms make both distant and near objects look smaller and more remote. For near objects (small white ball at eighteen inches) this effect is well marked with a prism of 14 degrees; while prisms of 26 degrees make both the white ball at eighteen inches and the candle at sixteen feet look very small and very remote.

Case 16.—Mrs. R. H. J. Age 65 or more. Myopia 0.75 D. Rather marked convergence-insufficiency. Overcomes prism of 22 degrees, base out, with difficulty, even at two feet from the eye. With a prism of 18 degrees or of 20 degrees, all objects at two feet or nearer seem much smaller, and, if the test is made with her reading glasses on, near objects look smaller and nearer. With 22 degrees prism objects at sixteen feet look further off and somewhat smaller, but the diminution in size is not as marked as in the case of near objects.

Case 17.—Bertha B. Age 19. Hyperopia 5.5 and 6.5 D. with astigmatism 2.5 D. Divergence-excess with convergence-insufficiency. Without any correcting glass but with prism of 22 degrees finds that distant objects look smaller and further off (this particularly manifest on taking prism off, when objects appear larger and nearer than with prism on). Under homatropine and with her correcting glass can hardly overcome

a prism of 14 degrees and cannot with this keep the images of a distant object single. An object three feet off looks smaller and further away.

Case 18.—Mrs. J. G. Age about 35. Mixed astigmatism of 1.75, right eye; hyperopic astigmatism 0.50 D. left eye. Accommodative convergence-excess, markedly increased by homatropine. Without her correcting glass and with prisms of 24 degrees, both distant and near objects look smaller and further off. With her accommodation completely relaxed by homatropine and with her correcting glass, prisms of 20 degrees and of 24 degrees make both distant and near objects look smaller and further off. Near objects look very small. The vision is appreciably reduced by the prisms (being $\frac{1.5}{20}$ with the 24 degrees, $\frac{1.5}{12}$ without it), but this reduction is not due to any residual accommodation, as the sight is not cleared up by adding a concave glass. Two days later with her correcting glass, overcomes 20 degrees with great effort and sense of strain. With this a near object looks smaller and more remote. If this near object is then gradually carried away from the patient, it seems to grow in size, so that when it reaches the other side of the room it is alleged to look larger than reality; but, if the patient looks at the same object across the room without its being first brought near to her, she says that it seems smaller than natural and further off.

Case 19.—Nellie B. Age 32. Hyperopic astigmatism of 1.25 D. With her correcting glass and with a 20 degree prism she uses no accommodation, and distant objects appear to recede, but undergo no change in size. With prisms of 38 degrees she exerts 1 D. of accommodation, and objects look still more remote but remain unchanged in size. No change is produced in this effect when the spasm of accommodation is neutralized and the vision cleared up by the addition of a —1 D. glass. She has frequently practiced with prisms, base out, and says that they always make objects look further off.

Case 20.—Adeline S. Age 15. Hyperopia. Overcomes prism of 18 degrees with difficulty. Observes no change in the distance of objects. Test made without correcting glasses. Vision normal.

Case 21.—Dr. C. A. J. With prism of 12 degrees says that near objects appear smaller and nearer; distant objects smaller and further off.

Case 22.—Kate E. Age 21. Hyperopia 2 D. With correction of 1 D. (with which vision is normal) and with prism of 18 degrees uses

slight accommodation; with prisms of 34 degrees uses moderate accommodation ($V = -\frac{2}{100}$). With both 18 degrees and 34 degrees distant objects look smaller and more remote.

Case 23.—Dr. E. S. High myopic astigmatism. Vision normal. With prism of 14 degrees says that objects look smaller and more remote, although after looking a minute he is able to correct the illusion and see objects of their natural size and distance. If then he uses a higher prism, objects again appear smaller and further off than in reality. If he looks through the prism without converging the two images that he sees are of their natural size.

Case 24.—Dr. G. H. M. Mixed astigmatism of 0.75 and 1.00 D. With prisms of 24 degrees a candle one foot off appears smaller and further away. When the candle is slowly carried away, it appears to increase in size, and when placed on the other side of the room is at first judged to be larger than natural, but if the prisms are then taken off he sees that the candle really looked smaller and more remote with the prisms than without them. (Compare cases 18, 27.)

Case 25.—J. J. C. Age 45. Hyperopia (1.25 and 1.75 D.) and astigmatism (0.50 D.). Divergence-insufficiency. Tested without correction of the refraction ($V = \frac{1}{2}\%$), he overcomes prisms of 24 degrees readily, and with these both the small ball at eighteen inches and the candle at sixteen feet look smaller and further off than they really are. The recession is particularly marked in the case of the near object. Under homatropine and with his refraction corrected, he says that with 20 degrees, which he overcomes easily, both near and distant objects appear more remote than they really are, but are of their natural size.

Case 26.—Tinie Y. Age 18. Hyperopia 2.50 D. with astigmatism of 2 and 3 D. $V = \frac{1}{3}\%$. V without glasses not more than $\frac{1}{4}\%$. Without glasses overcomes prism of 20 degrees with difficulty, and with this says that distant objects appear smaller and nearer.

Case 27.—G. R. S. Age 35. Hyperopic astigmatism of 0.75 D. Without his correcting glasses and with a prism of 18 degrees a near object looks decidedly smaller, but he is uncertain about its distance from the eye. When the object is carried away from the eyes with the patient still converging upon it, it is said at first to look larger and nearer than reality, but when the prism is taken off he recognizes that the size and distance of the object had not been actually altered in this way by the prism. Uses considerable accommodation.

Case 28.—Ella S. Age 31. Slight astigmatism and hyperopia. With prism of 18 degrees but without correction of the refraction, she says that distant objects appear of their natural size and distance, while a near object looks much smaller but at its proper distance.

In this series of experiments the patient, unless otherwise stated, was examined with his refraction corrected. Care was always taken to make sure that the patient was when looking through the prisms actually converging so as to completely unite the double images.

From these experiments the following deductions may be made:

1. In the great majority of cases (23 out of 28) the effect of a converging prism was to make a distant object appear either smaller or more remote. In seventeen of these it was *both smaller and more remote*; in two (Cases 2 and 11) it appeared *smaller* but not more remote; in four (Cases 4, 5, 14 and 19) it appeared *more remote* but not smaller. Of these four last named cases, however, it must be noted that two were only examined when under homotropine.

2. Both the apparent recession and the apparent diminution increased *pari passu* with the *amount of convergence* employed.

3. In some cases (Nos. 6, 12 and 15) the apparent recession of the distant object seemed to be the *primary effect* produced by converging prisms, since this recession was noticeable even with a prism that was too weak to cause any diminution in the apparent size of the object, and since also with all prisms it was more marked than the diminution. In other cases the diminution in size seemed to be the primary effect.

4. In but a single instance (and that a very uncertain one) was the distant object alleged to look *nearer*.

5. In no instance was it alleged to look *larger*. An apparent exception to this was found in several cases in which a near object that looked very small through the prism, looked so much larger, comparatively speaking, when it was carried further away, that it was thought to be actually larger than natural. But when the prism was taken off it was seen at once that the distant object had not really looked larger with the prism than it did without it; on the contrary, in most cases it looked smaller.

6. In the few cases (Nos. 13, 20, 27, 28) in which *no effect* was produced upon the apparent size or distance of an object across the room, the amount of convergence employed was usually small, and the analogy of other cases would lead us to suppose that with stronger

prisms a decided effect would be produced both upon the size and distance.

7. The effect upon the apparent size and distance of objects seen through converging prisms was less pronounced in those who from the start used but little accommodation in converging.* On the other hand it seemed particularly marked in those whose sight, at first blurred by the excessive accommodation employed, cleared up afterward through *relaxation of the accommodation*. Objects, as soon as they became distinct through this relaxation of the accommodation, appeared small and far off.

8. The addition of a *concave glass*, clearing up the sight that was blurred by the overplus of accommodation used, had no effect upon the appearance of diminution and recession produced by prisms.

9. The effect of *homatropine* pushed to the point of complete relaxation of the accommodation was in some cases (Nos. 5, 10, 14, 25) to make the object appear further off but no smaller. In one case (No. 11) it prevented both the recession and the diminution that had existed before. In this case, however, the findings were rather uncertain. In Cases 16 and 18 the diminution in size and the recession were marked both with homatropine and without.

10. In fourteen cases out of sixteen examined, the effect of looking through converging prisms at an *object near by*, (eighteen to thirty inches) was to make it appear *smaller*. This diminution in size was generally very marked even with weak prisms—much more marked, indeed, than for distance. In one case (No. 6) a near object looked remote but apparently no smaller, and in one (No. 11) it would seem that there was no change either in size or distance.

11. *Near objects* generally looked *more remote*, although sometimes they looked nearer than they really were. With strong prisms the recession may be very pronounced.

12. In all out of six cases examined under *homatropine*, a *near object* looked either further off or smaller or both further and smaller. The effect was usually a decided one.

The *explanation* of these phenomena is still somewhat difficult, although the experiments above described strongly indicate that the accommodation or rather, as I originally stated, the relaxation of an

*Yet in Case 16, in whom, on account of the age, there could have been little accommodation the effect was marked.

unnaturally tense accommodation, is the prominent factor in their production. I am inclined to think that it is the disturbance of the normal relations between accommodation and convergence, brought about by the use of converging prisms, that is chiefly responsible for the diminution in size that most people observe in an object seen through a prism of this sort. The recession, that is also generally noticed, seems partly due to the same cause, but is considerably influenced by the effects of contrast and perspective. The psychical element, too, must not be ignored. Many people tell us what they think they ought to see rather than what they really do see, and even those who try to give an accurate description sometimes pervert their actual impressions since they correct by a mental effort what they know to be an illusion.

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LISTING'S PLANE AND LISTING'S LAW.

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In an editorial communication upon "Listing's Plane" in the September number of THE OPHTHALMIC RECORD, Dr. G. C. Savage makes a series of statements of a somewhat revolutionary character which prior to their general acceptance need a little examination. This communication may be separated into five statements:

1. "*In this [Listing's] plane, Listing taught, is to be found the axis of every possible rotation of the eyes, both from the primary to any secondary position and from any one secondary position to any other secondary position.*"

This we take to be Dr. Savage's understanding of Listing's law. Let us see what the original statement of the law was, and how it has been understood by subsequent writers. Listing did not himself enunciate the law which first appeared in Ruete's *Lehrbuch der Ophthalmologie*, 1846, p. 14, quoted by Ruete in *Ein neues Ophthalmotrop*, 1857, pp. 42-43, in the following words (translated): "From the above given normal position (starting point, primary position) of the eye, it may be carried by the co-operation of the six muscles to any other (secondary) position

in such a manner that the [movement of] translation may be considered as a rotation upon a definite axis passing always through the center of the eye perpendicular to both the primary and secondary position of the optic axis, so that each secondary position of the eye stands in such a relation to the primary position that the rotation projected upon the optic axis is zero." Helmholtz states the law thus:* "When the line of fixation passes from its primary to any other position, the torsion of the eyeball in this second position is such as would have occurred had its rotation taken place upon a fixed axis perpendicular to the first and second positions of the line of fixation." Maddox* uses Helmholtz' definition.

Tscherning** gives it as follows: "For any point of fixation whatever, the position of the eye is the same as if starting from its 'primary' position it had made a simple rotation about an axis passing through the center of the eye and perpendicular to both the primary and secondary positions of the optic axis—which is equivalent to saying that there is no rotation about the optic axis."

As I read and understand these definitions, they all definitely assume the eye to start from its primary position, and very plainly say so. How, then, does Dr. Savage include rotations from "any one secondary position to any other secondary position"? If one is going to demolish Listing's law, it would seem to be a matter of ordinary scientific caution and fairness first to understand and state it correctly. The problem of finding the axis for any rotation of the eyeball has been well solved by Helmholtz, who gives the following simple general solution (l. c. p. 625): "To pass from any one position of the eyeball *a*, to any other position *b*, we construct the planes of the axes of rotation for the two positions *a* and *b*; the line of intersection of the two planes is the axis upon which the eye rotates to pass from *a* to *b*. For it is evident that this axis must lie in both planes in order to make rotation from *a* to *b* possible." For every secondary position of the eye there is a plane in which lies the axis of every rotation from that position. This plane is not what is called "Listing's plane," but is one bisecting the angle between the Listing plane and the transverse plané of the eye in this particular secondary position, and this plane, the locus of these axes, is

*Helmholtz, *PHYSIOL. OPTIK*, and, Ed. p. 623.

†Maddox, *THE OCULAR MUSCLES*, 1898, p. 40.

‡Tscherning, *LA LOI DE LISTING*, These de Paris, 1887, p. 7.

perpendicular to the bisectrix of the angle formed by the line of fixation of the eye in this secondary position, with the line of fixation when the eye is in its primary position. Thus the axis of rotation of the eyeball "from any one secondary position to any other secondary position" is "perpendicular to the bisectrices of the two angles which the two given positions of the line of fixation form with its primary position." (Tscherning.) So much for the first item.

2. Quoting from Maddox the statement that in the motion of the eye from the primary to some other position, the line of fixation sweeps along a plane to which the axis of rotation must be perpendicular, Dr. Savage comments: "*The plane at right angles to the line of fixation when in the primary position is the transverse plane of the eye, the plane at right angles to the line of fixation in the secondary position must also be the transverse plane of the eye, therefore the axis around which this rotation occurs is in the transverse plane of the eye.*" This is no doubt true, although the transverse plane is not the plane of the axes of rotation for the secondary position, and of course the axis of rotation is the line of intersection of these two planes. This is the Listing rotation. But when Dr. Savage says further:

3. "*An axis in Listing's plane could not remain at right angles to the line of fixation as it moves up and to the right,*" he transcends the facts, if the eye starts from its primary position, as he will see for himself if he study this rotation by means of Landolt's ball, for it is precisely what an axis in Listing's plane does do.

4. "*If the rotation in an oblique direction from the primary position, or from one secondary position to another were on an axis in Listing's plane, the line described by the visual axis would be a curved line, which cannot be the shortest distance between two points.*"

The meaning of this is not altogether clear. The visual line in motion generates a surface, not a line. If it is the path of intersection of the visual line with the enveloping spherical concave of the visual field that is meant, then this curved path would be an arc of a great circle of the visual field (when it passes through the primary fixation point), and the arc of a great circle is certainly the shortest distance between two points upon a spherical surface. I doubt if Dr. Savage can prove to the contrary. The arc traced by the visual line upon the spherical concave of the visual field in rotations of the eye from one secondary position of the eye to another will in general be arcs of circles whose

planes are perpendicular to the axis of rotation, and are arcs of the great circles only when they pass through the primary fixation point as above noted. Where they are arcs of parallel circles, they are not the shortest distance between the two points of the visual field, but Listing's law is not a law of actual, but of equivalent rotations. Here again we find the error above noted relating to the locus of the axes of rotation from one secondary position to another, which as we have seen is not Listing's plane, and was never assumed to be by anybody but Dr. Savage, so far as I know. Nor is it the transverse plane of the eye, as I have already pointed out. How Listing's law applies to these rotations may be shown in this fashion: Call the primary fixation point P , and p' and p'' any two other points of the visual field. The corresponding positions of the globe are respectively A , b and c . Now, according to Donders' law, if the line of fixation is directed to p'' , the position of the globe which we call c is the same by whatever path the point p'' has been reached. This position is given by means of Listing's law, starting from the primary position and carrying the line of fixation from P to p'' . Starting now with p' as the point of departure, we might reach p'' by any one of many different paths, but we are constrained in the end to place the globe in the position c , developed by the Listing rotation from A to c . The axis of rotation from a to b therefore, although not in the Listing plane necessarily, is to this extent a function of Listing's law, and may be calculated by its help.

5. *"In the study of the rotations of the eyes 'Listing's plane' and 'Listing's law' have hindered progress."* This must mean that in studying ocular rotations, a proper understanding of Listing's law has not always been easy, and that our progress toward a fuller knowledge of this subject has been hindered in consequence. Any law which fulfills the conditions of a rigid mathematical analysis, (see Helmholtz, 1. c. p. 645 et seq.), and which moreover "obtains practically with great accuracy in all normal and weakly myopic eyes thus far tested, for all parallel positions of the lines of fixation," is so firmly built into and become a part of ophthalmic science that any one who proposes to attack it must be unusually well armed, else the contest becomes palpably quixotic.

ABSTRACTS.

FROM RECENT OPHTHALMIC LITERATURE.

BY G. E. DE SCHWEINITZ, M. D., AND C. A. VEASEY, M. D.

The Operative Treatment of Pulsating Exophthalmos. Golowin (*Zeitschrift f. Augenheilkunde*, September, 1900) after a somewhat elaborate consideration of the clinical varieties of pulsating exophthalmos, the operations which have been proposed and practised for its relief and the record of two new cases, comes to the following conclusions:

1. In each case of pulsating exophthalmos the operative procedure must be decided according to the clinical form of the disease.
2. In cases in which important brain symptoms (vertigo, pulsation, and bruit which can be heard over a greater or smaller extent of the cranium) are present, ligature of the common carotid should unhesitatingly be practised.
3. In cases in which the disease-phenomena are limited to the orbit and the face an operation in the orbit itself is more applicable.
4. It is probable that in some cases good results may be obtained if ligature of the ophthalmic vein is undertaken through an incision beneath the brow. However, it is more judicious to execute this procedure after a temporary resection of the outer orbital wall.
5. Ligature of the ophthalmic vein preceded by resection of the orbital wall may prove useful in all cases of recurrence of the pulsation, or after failure following ligature of the carotid. In such cases this operation should have the preference over ligature of the common carotid upon the other side, inasmuch as the last named procedure originates great disturbance of the circulation in the brain.
6. Resection of the orbital wall should be the first stage of operations performed in all cases in which the phenomena of pulsating exophthalmos gives rise to the least suspicion that there may be a new growth in the orbital cavity.

The Toxic Action of Illuminating Gas Upon the Eye. Purtscher (*Centralbl. f. prakt. Augenheilk.*, August, 1900) has collected the literature of this subject and reported a case of his own. Comparatively

speaking, the number of cases of poisoning from the effects of illuminating gas and charcoal fumes are few, the author having been able to find about twenty examples scattered through medical literature, but only thirteen of these were utilized as relating especially to the eye. Of these nine were caused by carbonic acid poisoning and four by illuminating gas.

The following ocular phenomena have been described: Exophthalmos, strabismus, paralysis of the external ocular muscles, paralysis of the ciliary muscle, myosis, mydriasis, paradoxical pupillary phenomena, depreciation of central vision, contraction of the peripheral field, hyperæmia of the retinal circulation, contraction of the retinal arteries and pallor of the temporal half of the nerve-head. In his own case, a man aged 60, there was double lateral homonymous hemianopsia, complete upon the left and incomplete upon the right side with normal central vision and proportionately normal color vision, which at first made its appearance with the phenomena of binocular amaurosis succeeding directly upon an acute poisoning with illuminating gas. The visual disturbances in Purtscher's case may be explained in all probability by assuming a hemorrhage, perhaps an area of softening in the visual radiations, even perhaps in the cortex itself.

(Raffegaue in 1899 described a case of carbonic oxide poisoning with inferior hemianopsia and interstitial neuritis of the optic nerves which he attributed to a diffuse lesion of the occipital lobes. G. E. de S.)

Argentamin. In writing of Argentamin, Daxenberger (*Woch, für Ther. u. Hygiene des Auges*, Oct. 4, 1900) says that the true preparation, which is chemically æthylen diamin-silver-nitrate, should not be confounded with æthylendiamin-silver phosphate, an unreliable combination sometimes known as argentamin. His experience has been exceedingly favorable and he prefers the drug to silver nitrate because it has a greater bactericidal effect, produces less irritation, is entirely harmless and can be employed where there are corneal complications. It was employed in the different diseases of the conjunctiva and lid margins in which we are accustomed to use silver nitrate and with much less irritation and quicker results than are obtained with the latter. Cases recovered more rapidly when daily applications of a five to ten ounce solution were made directly to the conjunctiva of the everted lids and retrotarsal folds; when this could not be done the patient made daily instillations

of a 3 percent solution. Occasionally both methods of application were employed, cocainization was sometimes necessary in my sensitive patients.

The author not only urges the remedy as a substitute for silver nitrate solution in Credes method of prophylaxis but asserts that it is a specific in purulent conjunctivitis, especially when due to the gonococcus and excels all other similar preparations in its therapeutic value.

Largin. Largin, still another of the newer silver preparations, is discussed by Falta (*Wiener Med. Woch.*, 1900, 30, abs. in *Woch. für Ther. und Hygiene des Auges*, Sept. 13, 1900), who describes it as a grayish white powder of light specific gravity containing 11.1 percent of silver, slightly soluble in glycerine, blood-serum, alkaline and acid albuminates, but insoluble in ether and alcohol. When heated, fumes are given off somewhat similar to the odor of burnt lime. Solutions are quickly effected by light—three days' exposure in cloudy weather turns them brown—so that it is necessary to keep the drug in dark bottles. Upon standing a precipitate is formed, which will redissolve, however, when the solution is agitated.

The author claims that the preparation is borne well up to a 10 percent solution. After an application there is some burning and the eye becomes red, this redness remaining for a varying period; but the irritation is less than with protargol and much less with silver nitrate. Cases of acute, subacute and blepharo-conjunctivitis, corneal ulceration, catarrhal ophthalmia, trachoma and diseases of the lachrymal duct were treated with solutions of the drug and astonishing results are claimed. In conjunctival diseases with much secretion, the patient himself was directed to make a daily instillation of a 1 percent solution. In corneal ulcers, and in blepharo-conjunctivitis, topical applications of a 3 percent solution were employed. In chronic dacryo-cystitis it is stated that a 10 percent solution produced a more rapid diminution of the discharge than was ordinarily secured from the employment of a 20 percent solution of protargol. In trachoma the results were no better than with other remedies and as regards blenorrhœa of the conjunctiva the author has been content with silver nitrate. No symptom of argyria has been observed following its use.

The Comparative Value of Enucleation and the Operations Which Have Been Substituted for It. The conclusions which follow are from a paper read before the Section of Ophthalmology of the Thir-

teenth International Congress of Medicine in Paris by Dr. G. E. de Schweinitz, whose article appears in full in the *Rapports de la Section d'Ophthalmologie* and in a separate brochure in English printed in September, 1900. The paper was based upon the opinions of American surgeons on the subject announced in the title, 117 of these surgeons having contributed their experiences. In the paper there is an analysis of 186 abscission-operations, 478 simple eviscerations, 317 eviscerations, with the insertion of an artificial globe into the emptied sclera (Mules' operation), and 72 operations for the implantation of an artificial globe into Tenon's capsule after removal of the eyeball. Incidentally are discussed also the implantation of sponge into the orbit after enucleation, opticociliary neurotomy and neurectomy, and the methods of preparing the stump after complete enucleation which best secure mobility of the prosthesis and cosmetic results.

Conclusions.—1. Eyes so diseased or injured that they have already excited sympathetic ophthalmitis, or eyes which contain malignant growths, should be enucleated.

2. Eyes in which a suppurative process has begun may be enucleated with safety provided the process has not involved the surrounding orbital tissues or already begun to extend posteriorly so that it would be difficult to obtain an aseptic socket.

3. Eyes so wounded that they are likely to excite sympathetic ophthalmitis should be enucleated if two weeks or more have elapsed since the reception of the injury, because under these circumstances enucleation affords a greater security to the patient than any of its substitutes. If the eye is so injured that the sclera is extensively lacerated, enucleation is also indicated.

4. Eyes so wounded that they are likely to excite sympathetic ophthalmitis, if seen before two weeks have elapsed, need not be enucleated—that is, evisceration or Mules' operation may be performed, because, with perhaps the exception of a single case, there is no positive proof that these operations have of themselves excited sympathetic disease. They may fail to arrest the development of sympathetic ophthalmitis, just as enucleation may meet with a similar failure.

5. Staphylomatous eyeballs, especially when they occur in children, need not, in fact should not, be enucleated. When uninfamed they may be treated by the operation of abscission or complete keratectomy primarily with safety, but it cannot be promised that subsequently, it

may be years afterward, the stump will not undergo calcareous or osseous change, which may excite sympathetic irritation in the other eye and require enucleation. Staphylomatous eyes are suited to Mules' operation.

6. Eyes which are greatly shrunken (excessive phthisis bulbi) should be enucleated, as they do not lend themselves with safety either to evisceration or to Mules' operation.

7. Painful blind glaucomatous eyeballs, or eyeballs blind from chronic nontraumatic iridocyclitis, may be treated by evisceration, with or without the insertion of an artificial vitreous, in the place of enucleation, with safety. They furnish one of the few indications for opticociliary neurotomy or neurectomy if enucleation or one of its substitutes should be refused by the patient.

8. Enucleation is preferable in very old patients, when the time element is important, and when the physical condition is such that the prolongation of convalescence is undesirable.

9. Evisceration as a substitute for enucleation is a safe operation, and temporarily yields a stump which is better than the stump after ordinary simple enucleation. Subsequent shrinking of this stump, however, ultimately renders the cosmetic effect of the operation no better than ordinary enucleation, while its inconveniences are much greater.

10. The best cosmetic results among the substitutes for enucleation, if successful abscissions are excluded, are secured by Mules' operation, which is only positively contraindicated by malignant disease, sympathetic ophthalmitis, extensive laceration of the sclera, and extreme phthisis bulbi. But it should be remembered that the primary excellent cosmetic effect of Mules' operation slowly lessens, owing to atrophy of the tissues of the orbit and sinking in of the artificial globe. This diminution in the volume of the stump is, however, much less marked than after simple evisceration.

11. Whenever a complete enucleation is performed, there is no objection to the implantation of a glass ball or of a piece of sponge into Tenon's capsule, except perhaps after enucleation for sympathetic and malignant disease, but it is doubtful if the ultimate cosmetic advantage of the operation exceeds that of a carefully performed enucleation.

12. There is no perfect substitute for enucleation, and necessarily

this operation must continue to be performed in many, if not in the majority of cases. When it is performed according to the rules of improved technic, which include suture of the severed tendons to the conjunctiva, the cosmetic effect of the operation is, primarily at least, as good as any of the substitutes, with the exception of Mules' operation and abscission, and is free from the objections which surround them. It seems likely that with further improvement in technic, and particularly in the manufacture of artificial eyes, the cosmetic effect will be enhanced and render less objectionable the operation of enucleation and less necessary the substitutes for it.

13. An enucleation which pays no attention to the preservation of the relationship between the conjunctiva, ocular tendons, and capsule of Tenon, is a brutal operation which should not be performed unless the disease of the globe and surrounding orbit is of such character as to render this precaution impossible.

The foregoing conclusions seem to be warranted by the statistical information gathered in this paper, although the author fully realizes that some of them will not be acceptable to all of the 117 surgeons who have contributed their experience. For example, a number of operators undoubtedly would reject conclusions 2 and 4, although they are in accord with the surgical beliefs of others. So, too, the final sentence in conclusion 5 is in direct discord with some of the recorded opinions, but in equally direct accord with the views of others. In other words in these conclusions an endeavor has been made to epitomize the opinions which have been expressed by the various surgeons, although necessarily it was impossible to construct a series of deductions which would be equally acceptable to all contributors.

[Personally, they seem to me to represent a safe line of practice. In those cases in which complete enucleation is not demanded—and in my opinion they are in the minority—Mules' operation, when successful, certainly furnishes admirable results, but I feel sure that although at the present time, from the cosmetic standpoint, it seems to be one of the best, if not the best, of the substitutes for enucleation, it is not likely to endure as an operative measure in ophthalmic surgery unless the percentage of failure is greatly reduced. I believe, as I have stated in conclusion 12, that improvement in the technic of performing the operation of enucleation and in the manufacture of artificial eyes will probably be so great in the future that this and other substitutes for enucleation will seldom be required.—G. E. de S.]

REVIEW.

THE VALUE OF PROTARGOL IN THE TREATMENT OF DISEASES OF THE EYE.

Since the employment of protargol in ocular therapeutics so much has been written in favor of and against its value that a recent review of the subject by v. Sicherer (*Zeitschrift für Augenheilk.*, Sept., 1900) is of much interest. Beginning with the discovery of the drug by the Chemist Eichengrün and its introduction as a therapeutic agent by Benario, the recorded reports of the numerous ophthalmic surgeons who have employed the remedy are viewed.

Thus, Darier, the first to begin its use in diseases of the eye, in his well-known papers on the subject, has unhesitatingly indorsed it as far superior to any other remedy in our possession in the treatment of the various forms of conjunctivitis, particularly of the gonorrhœal type. He directs attention to the extensive bactericidal action, the small amount of pain and the absence of any caustic effect. The only disadvantage it has in common with silver nitrate is the argyria, and it is a remedy to be employed, not only by the physician himself, but by the patient. Darier's method of employment was to have made three or four daily instillations of a 5 per cent solution in cases of simple conjunctivitis and to increase the frequency of these instillations according to the severity of the case. In marked purulent conjunctivitis the instillations were made as frequently as every half hour. A 50 per cent solution was employed in making applications to the everted conjunctiva and the lid margins in blepharitis and blepharo-conjunctivitis, and in some cases of purulent conjunctivitis and trachoma the powder itself was dusted on the inflamed membrane. In dacryo-cystitis the best results were obtained by irrigating with a 5 to 10 per cent solution.

Pergens also reports excellent results, but uses somewhat weaker solutions. By six daily instillations in the graver cases and three daily instillations in those of milder type, it was noted that conjunctivitis was cured in from four to twenty-six days. Two cases of ophthalmia neonatorum recovered in six to thirteen days. Cases of purulent

dacryo-cystitis irrigated with a 10 per cent solution healed in from ten to twenty days. On the other hand, in scrofulous inflammations and in chronic blepharitis there was no improvement, while in chronic purulent conjunctivitis the improvement was slight.

Pflüger reports that in the treatment of gonorrhœal conjunctivitis he was unable to obtain a single favorable result and Darier attributes this experience to the fact that only one-fourth per cent solutions were employed—solutions entirely too weak for this class of cases.

Wicherkiewicz, in acute granular and catarrhal inflammations of the conjunctiva, obtained no results worthy of mention, but in purulent dacryo-cystitis, ophthalmia neonatorum and gonorrhœal ophthalmia in the adult, most excellent results were secured. Corneal ulcers, especially when accompanying gonorrhœal inflammations, and ulcerative blepharitis were also improved by the use of protargol, and the injection into the vitreous of a 5 per cent solution is claimed to localize intra-ocular suppuration.

Janner also reports unfavorably concerning its value in catarrhal conjunctivitis, but found it of service in dacryo-cystitis and ophthalmia neonatorum. It is interesting to note, however, that in three cases of the latter disease the suppuration was increased by the use of protargol, but immediately improved under applications of a 2 per cent solution of silver nitrate.

Lesshafft agrees with Wicherkiewicz and Janner as to its inefficiency in catarrhal inflammations of the conjunctiva and also adds trachoma to this list. He has found it of considerable value, however, in the treatment of some cases of gonorrhœal affections, though the applications were not so painless as stated by some observers. In three of his cases the results were decidedly unfavorable. In the first, although healing took place, there followed a formation of granulations that could only be antagonized by silver nitrate. In the second, the conjunctivitis assumed a croupous character and trachoma-like granulations formed, also only subsiding after the employment of silver nitrate. In the third, the protargol finally produced a very unfavorable effect and had to be abandoned, so that he admits that there are not only cases not favorably influenced, but that even show an idiosyncrasy to the drug. Lesshafft directs attention to the fact that in preparing the solutions there frequently occurs, by an excessive heating, a splitting of the silver, making the preparation less active. It is best, therefore, to triturate

the powder in a porcelain mortar with as many drops of glycerine as there are decigrams of protargol and then to add cold water drop by drop.

Wolfberg, in his early experience, obtained very unfavorable results, but after preparing the solutions after the manner of Lesshafft they became notably better. Regarding the choice of silver nitrate and protargol in the treatment of gonorrhœal conjunctivitis, he says that if no membranes are present silver nitrate is indicated, but if there is no improvement, the treatment should be continued with protargol. This remedy, however, the efficiency of which has not been established beyond doubt, should not be persisted in if a positive turn for the better is not soon apparent.

Messner believes that in the treatment of all cases of suppuration of the lachrymal sac and in ophthalmia neonatorum, protargol is equal in value to any of the earlier remedies and that it surpasses most of them. In acute conjunctivitis and blepharitis it was of little use. The applications were painless and argyria was never observed.

Walter's results were totally unfavorable. There was even more pain than followed the use of nitrate of silver, and in the treatment of more than fifty cases he never saw any marked improvement. On the contrary, he did occasionally observe the increase in the amount of secretion after the employment of protargol.

Wingenroth obtained good results in ophthalmia neonatorum and suppurative dacryo-cystitis, in the former using 2 per cent and in the latter 5 to 10 per cent solutions.

Praun obtained excellent results from the very beginning, and attributes them to the fact that he has always employed strong solutions. Argyria was observed only after long continued instillations and was never seen to follow the use of protargol ointment, though used for many months. The only conjunctival affections that did not do well under protargol were acute and chronic conjunctivitis sicca and follicular conjunctivitis.

Emmert is exceedingly enthusiastic in his reports and claims good results in ophthalmia neonatorum, both in the cure of the disease and as a prophylactic measure, in acute chronic phlyctenular and follicular conjunctivitis, spring catarrh, eczematous keratitis, mycotic inflammations of the cornea, blepharitis, chronic dacryo-cystitis, and in pustular and erysipelatous processes in the vicinity of the eye.

Esmann employed it as a prophylactic measure (but only in 1 to 2 per cent solutions) in 275 new born children, and comparing the results with the use of silver nitrate (1 in 150) in 277 new born children, concluded that ophthalmia neonatorum was more certainly prevented by the use of nitrate of silver solutions.

Engleman claims that these poor results were due to the use of such weak solutions and compares them with his own results in the use of a 20 per cent solution in 100 cases in which protargol proved the superior of nitrate of silver in every way.

Cramer and Furst also obtained good results in using it as a prophylactic in ophthalmia of the new born, the former using it in 200 cases, while v. Animon does not seem so enthusiastic as regards its prophylactic use, but recommends it, however, in 20 per cent strength in the actual treatment of the disease in that stage in which the lids can be thoroughly opened.

Regarding the antiseptic properties of protargol, it is interesting to note that the experiments of Hauenschild, in which it was compared with oxycyanide of mercury, silver nitrate and carbolic acid seemed to show that it was not worthy of the hopes that had been entertained concerning it in this particular.

Valencon made a number of comparative observations in the treatment of different diseases that resulted quite favorably to protargol. Acute contagious conjunctivitis due to Weeks' bacillus was radically cured in five days. On the other hand, diplo-bacillus conjunctivitis was better influenced by sulphate of zinc, thus agreeing with the observations of Morax and Stevenson. In dacryocystitis good results were obtained with 5 to 10 per cent solutions, but in trachoma, argemtanin proved the more beneficial. Doubtful results were obtained in blepharitis by Valencon; on the contrary Demec, Ginestous and Moinson claimed excellent results. In catarrhal conjunctivitis Leplat, Deneffe, Guarino, de Speville and Girard noted favorable results, while Ginestous obtained no result whatever, and Valude obtained as much with silver nitrate. Guarino, Bistis and Lainey were very well satisfied with protargol in the treatment of purulent conjunctivitis, while Dubarry observes that, even though concentrated solutions are employed, recovery does not take place until after the use of 5 per cent silver nitrate. De Schamps believes that nitrate of silver is better in the acute stages, but that protargol yields excellent results later. Abidie

claims that protargol is applicable only in the milder cases and considers it valueless in the more severe. Darier obtained no improvement in the treatment of spring catarrh with protargol, and Despagne and Carra report remarkably quick recovery from its use. In trachoma, Valencon obtained no results worthy of mention, and Deneffe, Guarino and Boilas speak highly of its use. In dacryo-cystitis we have favorable results from Ginestous, Lainey and Bistis, the latter employing protargol sounds after the manner of Antonelli.

Among the Italian authors we have Gotti, Chiapella, Riccardo, Pisenti, Pardo and Sicher reporting good results in catarrhal conjunctivitis. Basso obtained good results only in the acute stages, and Cipriani in acute epidemic edematous conjunctivitis. In blepharitis we have Bossalino reporting unfavorable results and stating that protargol is a good substitute for nitrate of silver, though much less energetic. In dacryo-cystitis Pisenti, Gotti, Sicher and Basso are in favor of the remedy, and Antonelli recommends 50 per cent protargol sounds. Bribosia applies protargol to the eyes in the form of vapor (5 per cent). In purulent conjunctivitis it is recommended by Renario, Gotti, Pisenti and Basso; but the latter states that in all diseases accompanied by a deeply spreading infiltration or hyperplasia of the tissues, as in chronic conjunctivitis, trachoma, etc., the results were unfavorable.

Stevenson regards protargol as possessing commendable advantages in various external ocular inflammations, though not exactly an ideal remedy. He obtained good results in catarrhal conditions of the lachrymal sac, and in purulent conjunctivitis. In the latter disease Perrine employed for the first three days a 10 per cent solution and then a solution of half this strength with good results, while Alt found the treatment to last just as long with protargol as with nitrate of silver. Peck reports recovery in sixteen days when employing weak solutions and advises in gonorrhœal ophthalmia, that a 1 per cent solution of silver nitrate be employed after the disappearance of the gonococci. Hilscher recommends a 10 to 20 per cent solution as prophylaxis in gonorrhœal ophthalmia. Ramsay, Perrine, Peck and Alt obtained favorable results in blepharitis, but Stevenson found the 10 per cent protargol ointment no better in this affection than mercury. In trachoma Alt observed that protargol had very little influence when numerous and well developed granulations were present, but that in the earlier stages it was just as serviceable as sublimate solutions. Cheatham, Ehrhardt, Stubbs and Renaud also report favorable results.

Among the Russians protargol received a variety of acceptations. Braunstein lays stress upon its excellent healing action in acute conjunctivitis, while in chronic cases he was able to obtain recovery in very few instances. He also found that the early stages of trachoma were favorably influenced, as well as purulent keratitis and dacryo-cystitis. These favorable conclusions are supported by Dissler, Piotrowsky, Constantinesque, Bèla, Prohazka and Dagilaisky. Szulislansky obtained no exceptional results in catarrhal conjunctivitis with 20 per cent solutions, but saw rapid recovery in trachoma by treating the expressed areas with a 10 per cent solution. He also saw good results in dacryo-cystitis, and Gishden observed favorable influence upon conjunctivitis of the anaemic.

Féuer lost several cases of gonorrhœal ophthalmia which he attributed to the employment of protargol, and his experience is sustained by Laurentiew. Langie and Adelheim also report unfavorably concerning its value.

As regards the pain produced by protargol, there is also much difference of opinion. On the one hand we find Messner, Guarino, Leplat, Deneffe, Chiapella, Bossalino, Gotti, Alt and Peck regarding the remedy as painless, or producing a mild transient burning, while on the other we have Walter, Despagnet, Ginestous, Logelschnikow and Snequirew, who claim that the pain is most intense.

In our own country we seem to have as much difference of opinion regarding the value of this most interesting drug as is recorded by the author in his paper. In addition to the experience of our own countrymen referred to by him, we have Hotz, Jackson, Connor, Southard and Hiers giving the most favorable testimony concerning its use. Fox obtained good results in gonorrhœal ophthalmia, but in trachoma and dacryo-cystitis, while it diminished the amount of discharge, it did not cure the cases. In acute trachoma and gonorrhœal ophthalmia Bulson and Hiers testify favorably for the drug, and McConachie against it as compared with silver nitrate. De Schweinitz, Wood, Clark and Allport speak of the great variability of the drug, at times obtaining the most excellent results and at other times in apparently similar conditions obtaining results that were totally indifferent.

It seems, therefore, that notwithstanding the large amount of clinical data that has already accumulated concerning protargol, the results are so contradictory that it will be impossible to draw any definite conclusions regarding its therapeutic value and indications until much more extensive experience is at hand.

C. A. VEASEY.

"PHYSIOLOGIC OPTICS."*

It has often been a matter of regret that there existed no English translation of Helmholtz' great work. This was not merely on account of its individual excellence, but also because one did not have in the language anything that attempted to cover approximately the same ground. From the days of Thomas Young the numerous and important observations upon this subject have been scattered through a wide field of scientific literature with the greater part of which very few surgeons had any acquaintance.

There will henceforth be far less reason for such regret. The book upon the subject by Dr. M. Tscherning, first published two years ago, has been translated by Dr. Carl Weiland of Philadelphia, and published by the *Keystone* of that city.

Since a work of this kind is now new in our language, it may be worth while to point out that physiological optics is an entirely different subject from errors of refraction. This may be illustrated by the fact that in this work of three hundred and seventy pages, the chapter on Anomalies of Refraction occupies just sixteen pages. Of course there are, in addition to this, separate chapters on Astigmatism, Aberration, Accommodation and Ophthalmoscopy, but in these the subjects are treated from a standpoint entirely different from that of the usual treatise on the refraction of the eye.

These, with chapters on Optic Principles, the Optic System of the Eye, The False Images of the Eye, Ophthalmometry, Circles of Diffusion and Entoptic Phenomena, make up the first great division of the book entitled "Ocular Dioptrics." The other two divisions of the work deal with Functions of the Retina, and the Ocular Movements and Binocular Vision.

In his preface the translator says: "It is true that some of the ideas expressed by the author, especially those about the use of mydriatics for ordinary purposes of refraction and the use of spectacles, are not in accord with current views about these subjects on this side of the Atlantic. But even those who cannot agree with the author on these questions will find many new facts and ideas which will make a study of the book of great interest and profit."

*PHYSIOLOGIC OPTICS by Dr. M. Tscherning. Authorized translation by Carl Weiland, M. D. 370 pages, 212 illustrations. Published by the KEYSTONE, Philadelphia, Pa. Price, \$3.00.

The views thus referred to are simply the crude, inaccurate speculation and teaching current everywhere a generation ago, but which practical experience has largely driven from favor in this country. It is possible that the authority of Tscherning may be appealed to for the purpose of again giving them currency. But the insignificant portion of the book that they occupy causes them to detract but little from its value to the student of physiological optics.

Tscherning is best known among us for his attack on the Helmholtz theory of accommodation, so that his chapter upon this subject, including some thirty pages, will naturally be one of the first to claim attention. To do justice to it in a notice of this kind would be quite impossible. It contains both a record of observations and the theory he advances for their explanation. There is no confusion of the two, and about the correctness of the principal observations which militate against the Helmholtz theory there can be little question.

Helmholtz believed that in accommodation the lens surfaces became more nearly spherical. Tscherning has demonstrated that during accommodation the anterior surface of the lens as a whole approaches a conical form, with a stronger spherical curve at the center, or, as he expresses it, that "*accommodation is effected by the temporary formation of an anterior lenticonus.*" That this is actually the character of the change in the form of the lens there can be little doubt. It is the relation of this change of form to the action of the ciliary muscle that is still uncertain, and the view that accommodation is effected by tension of the zoneule rather than its relaxation is at least worthy of careful consideration.

The chapter on Ophthalmometry is a very condensed but beautiful presentation of its subject. Those on the False Images of the Eye, Circles of Diffusion, Aberration and Entoptic Phenomena contain matter of great interest. The part upon the Ocular Movements presents little that will appeal strongly to one familiar with recent English literature, and especially with the studies of Maddox.

Some facts have been elicited by the recent discussions of muscular anomalies in this country which might with advantage have been included in the work. In general there is shown a lack of familiarity with the contributions to our knowledge of physiological optics that have been made in the last few years on this side of the Atlantic. Notes by the translator have supplied some of the more serious of the omis-

sions due to this cause, but not all. Some of them, too, have been supplied by additions made by the author, so that we have not a mere translation of the work as it appeared in French, but to some extent a revised edition. These changes show a growing recognition on the part of the author of the value of skiascopy as a method for the original investigation of certain points regarding refraction and accommodation of the eye. It seems uncalled for, however, to speak of the plan of reducing the source of light for the shadow test as nearly as possible to a point as the "method" or "condition" or "principle of Jackson." It is not a special method or a distinct principle, but the real basis of the shadow test assumed and worked upon by all who have developed or used the test. It merely gained in prominence as the test was rendered more exact.

This book is also notable as a translation. The literary style of the original is strikingly condensed, but clear and simple. And this condensation, clearness and simplicity, Dr. Weiland has preserved to a remarkable degree.

EDWARD JACKSON.

Medical Fees in China.—As Chinese affairs are very much to the fore just now, it may be interesting to mention that a doctor's fee is perhaps the smallest in the world, ranging from 2d to 5d, but this can be accounted for by the fact that any one can practice, it being necessary only to hang out a sign intimating the fact that the owner has some medical knowledge, and although these are very numerous, they are, as a body, the most respected men in China.

Dr. Leopold Javal, the eminent French ophthalmologist who has just been made officer of the Legion of Honor, recently lost his sight as the result of glaucoma. He began his career as a mining engineer, but having undertaken the translation of Helmholtz' "Optical Physiology," he was so much interested that he studied medicine and took up ophthalmology as a specialty. Some years ago he was elected member of the Chamber of Deputies, and was instrumental in passing the "Seven Children Law," which exempts from taxation the parents of families of not less than that number. He now devotes his attention to the improvement of the means of enabling the blind to write.

REPORT OF SOCIETIES.

SECTION ON OPHTHALMOLOGY.

COLLEGE OF PHYSICIANS OF PHILADELPHIA.

MEETING OCTOBER 16, 1900.

DR. GEORGE C. HARLAN, in the chair.

Dr. William Thompson exhibited two men recently operated upon at Wills Hospital for *Removal of Metallic Foreign Bodies* by the small magnet from the posterior portion of the eyeball. In one case, a piece of iron, 8 mm. by 1.5 mm., penetrated the inner side of cornea near the horizontal meridian, and was located by the X-rays imbedded at a point 5 mm. below and 3 mm. to the temporal side of the macula. The body was removed through a scleral incision midway between external and internal recti. Very little reaction followed. In the second case a chip of steel entered the cornea, 2 mm. above and 2 mm. to the outer side of the center, wounding iris and lens, and imbedding itself, as shown by the radiographs, 2 mm. above and 6 mm. to nasal side of macula. The partially transparent lens was extracted through the usual incision, an iridectomy performed, and the point of the magnet passed to the supposed situation of the metal. Upon its removal, a piece of steel 1.5 mm. by 1 mm. was found attached to the magnet point. Three weeks after operation the eyeball was markedly injected, with lessened tension.

Dr. George C. Harlan showed an Italian girl, 14 years of age, presenting the history and the ophthalmoscopic appearances of *Embolism of the Central Retinal Artery*, except that the arteries contain blood and pulsate freely on pressure. The patient has menstruated regularly for two years, and seems to be in perfect health. Sight was suddenly lost in the right eye on October 7, and when she came to the Pennsylvania Hospital two days later, there was a faint perception of light revealed by the flash of the mirror, which has since given place to absolute blindness. The whole fundus, except the extreme periphery, presented a grayish-white color, most dense about the macula and disk, and shading off gradually to nearly normal red at the periphery. The red spot at the macula was darker than the typical "cherry-red." The vessels were obscured in places by the retinal opacity, but reappeared. The arteries were normal in caliber and pulsated freely

under pressure. The veins were slightly engorged. There were no hemorrhages. On October 16 the arteries are somewhat narrowed, but still pulsate under moderate pressure, the veins less engorged and of lighter red, and the red spot at macula also lighter, while two bright-red punctate hemorrhages have appeared in the macular region. There is no marked change in the general color of the fundus, but the disk is decidedly pale. Considering the full arteries and distended veins, the most probable diagnosis seemed at first to be venous thrombosis, but the subsequent narrowing of all the vessels and the absence of considerable extravasations do not encourage this view. Incomplete embolism is more probable, but the pathology is very obscure. The urine and blood are normal. Dr. de Schweinitz suggested hemorrhage in the nerve-sheath as a possible cause.

Dr. Risley exhibited a man from the Wills Hospital, 59 years of age, upon whom he had performed *Simple Extraction of Cataract* in each eye. The case was presented because of the unusually favorable results which had been reached. Vision was 6-v in each eye, and the man enjoyed perfect binocular vision both for distance and in reading; the pupils were central and round, reacted normally to change of light and shade, and there were no adhesions in either eye, either to the capsule or the cornea in the region of the wound. The cicatrix in the line of the incision was visible only on careful inspection, and was then found to lie in the clear corneal limbus. Dr. Risley said that he had never before been able to secure in both eyes of the same patient an ideal result. While this was not unusual in one eye, some error in technic or accident during convalescence had always marred to some extent the result in one eye. In conversation with his colleagues he had been led to believe that this had been their experience also.

Dr. William M. Sweet reported a case of a *Piece of Glass in the Ciliary Body Located by the Roentgen Rays and its Removal with Forceps*. The injury occurred to an engineer from the explosion, on March 1, of a locomotive oil-glass, a fragment penetrating the cornea in the lower outer quadrant near the sclera, and passing through iris and periphery of lens. When first seen, three months after the accident, the lens had been absorbed, but haziness of the vitreous prevented a view of the interior of the globe. Radiographs indicated that a body, casting a fainter shadow than is usual with metallic substances, was situated close to the ciliary body at its lower temporal portion.

On October 6 an iridectomy was performed at the Jefferson Hospital through an incision at the lower outer corneo-scleral junction, and a pair of iris forceps passed to the spot indicated by the radiographs. After a number of attempts, a mass of exudate containing the piece of glass was drawn into the anterior chamber and removed. Warm saline solution was injected into the globe to replace the vitreous lost. The mass was 5 mm. long, 3 mm. wide, and 1.5 mm. thick. Very little reaction followed the operation, the corneal wound healing on the third day and the man being discharged on the eighth day. The vitreous is still hazy, but the eye is quiet, with prospect of a serviceable ball and possibly some sight.

Concerning Traumatic Palsies of the Ocular Muscles, with Cases.—

Dr. G. E. de Schweinitz, after a brief reference to the literature of traumatic paralysis of the ocular muscles, reported the following case: Paralysis of the left inferior rectus from a knife-thrust, advancement of the severed tendon and tenotomy of the superior rectus, cure; division of the pulley of the superior oblique during an operation for abscess of the orbit caused by suppurating ethmoiditis, spontaneous disappearance of the diplopia, restoration of the normal rotations of the eye; injury of the superior oblique and superior rectus during an operation for the removal of a tumor from the orbit, the patient still under treatment; paresis of the right inferior rectus following a fall on the right side of the head, spontaneous recovery; paralysis of the left superior rectus and left levator palpebræ following a fall upon the left side of the head and forehead, spontaneous disappearance of the ptosis, persistence of the paralysis of the left superior rectus, binocular single vision secured by tenotomy of the left inferior rectus; paresis of the right superior oblique following a fall on the right supra-orbital region, later paresis of accommodation, complete recovery; paresis of the left inferior rectus following a fall on the head succeeded by concussion of the brain, recovery; paralysis of the left superior oblique following a fall on the head succeeded by severe concussion of the brain, recovery.

Of the five cases of palsy not produced by direct traumatism, Dr. de Schweinitz attributed two of them to a basal lesion, one almost certainly being associated with fracture, one to a nuclear lesion in the anterior portion of the third nerve nucleus, and the other possibly to a nuclear lesion. In one case the evidences of injury were so slight,

with the exception of the paralysis of the inferior rectus, that no satisfactory localization of the lesion could be made.

Discussion.—Dr. S. D. Risley recalled the history of a case presented to the Section last year, of a man who had been thrown from his buggy and remained unconscious for two days, besides suffering from a large lacerated wound of the scalp above the right frontal region. When seen nearly three months later there was a nearly complete paralysis of all of the ocular muscles on the right side supplied by the third nerve except the levator. He did not know the later history, but thought it obviously belonged to the last group of cases. He presented the history of two cases which properly belonged to the first group. A lad had received a thrust from the ferrule of an umbrella which detached the whole or a large portion of the tendon of the internal rectus and lacerated extensively the conjunctiva and capsule from the upper quadrant of the eyeball, pushing it backward. When seen in consultation with Dr. John T. Carpenter, Jr., these tissues had fastened themselves to the sclera in their abnormal position, and diplopia existed. The tendon of the internus and the torn tissues were separated from their faulty attachment and brought forward by Dr. Carpenter, with the result that the diplopia disappeared. In the second case the tendon of the inferior rectus had been severed from the ball with considerable laceration of the capsule to the temporal side, causing vertical diplopia, violent attacks of headache, and inability to use the eyes. There was a marked rotation of the vertical meridium of the cornea. The tendon of the internus was brought forward, with the result of relieving the vertical diplopia except during fatigue or when looking downward and to the left, when there would first be considerable confusion of vision, then a recurrence of the diplopia with nausea and occipital pain. The capsule and overlying tissues at the temporal side of the inferior rectus were then detached and brought forward and the diplopia and asthenopia quickly disappeared. Dr. B. Alexander Randall referred to a case of paralysis of the inferior rectus, decreasing when he first saw the man, in which complete recovery followed absorptive treatment. In a child with paralysis of the superior rectus and levator muscles, from penetration of a cow's horn, perfect success followed picking up the rectus muscle and stitching it in place, but the result of operation upon the levator muscle was not so good.

WILLIAM M. SWEET,

Clerk of Section.

CHICAGO OPHTHALMOLOGICAL AND OTOLOGICAL
SOCIETY.

MEETING OCTOBER 9, 1900.

DR. WESCOTT, in the chair.

Dr. Casey Wood exhibited a patient with *primary melanotic spindle celled sarcoma of the right iris* with microscopic sections of the excised growth. The history of the case is as follows: Mrs. C., aged 40, has not suffered from any serious illness although her family history on the side of her mother, whom she closely resembles, is somewhat peculiar. The mother, two maternal aunts, and one maternal uncle died of malignant disease, one of these, an aunt, from recurrent tumor of the eyeball. There is no history of any member of the father's family having been so affected. So far as her own experience is concerned she never complained of any ocular affection except an asthenopic attack five years ago, probably due to prolonged insomnia, from which she entirely recovered. Last February she noticed a feeling of fulness in the right eye, and about that time first perceived something growing on the iris. Shortly afterward she suffered from supraorbital neuralgic pains, accompanied by lachrymation—all confined to the right side. These symptoms led her to a more careful examination of the eye, and she observed two other but smaller spots on the colored part of the eye situated one above and one below the pupil. On June 2, 1900, she presented herself at Dr. Wood's clinic at the Post Graduate Medical School, owing to a return of the feeling of fulness in the right eye and because she noticed that the brownish deposit in the eye had considerably increased in size.

On examination the tension was found to be plus 1, the vision was reduced to 2-7, somewhat improved on a hasty trial with lenses. The superficial scleral vessels were slightly enlarged, and toward the temporal side directly outwards on the anterior surface of the right iris was noticed a dark brown, smooth, irregular triangular growth, apparently of about the same thickness as the iris, elevated above its plane, and evidently growing from it. Its base was 3 mm. wide and was applied to the root of the iris, while its apex did not quite reach the margin of the pupil when that aperture was in a state of medium dilatation. It looked as if a piece of dark brown velvet had been laid on

the iris. By means of the oblique illumination the edges and some parts of the growth appeared to be translucent. Its borders were sharply defined, its surface seemed homogeneous and the neighboring iridic tissue was not discolored or muddy. Two deposits of apparently the same character as the largest tumor were readily seen on the nasal half of the iris. They were of the size of pin heads and were within, respectively, the upper and lower quadrants.

The pupil dilates irregularly with a mydriatic hardly at all at the seat of the growth, although there is no posterior synechiæ to be observed, no indication of the tumor bulging behind the iris. The media and fundi—especially the ciliary retina and disk—appear normal. The left eye is in all respects healthy, the iris especially being free of any abnormal pigmentation or elevated deposits.

After keeping the patient under observation for a short time a broad peripheral iridectomy, including the whole of the temporal mass, was done. There was not more than the usual amount of hemorrhage and healing was normal. The iris tissue removed was preserved in 10 percent formalin and given for examination to Dr. Brown Pusey, who pronounced it to be a true sarcoma—mainly of the spindle-celled variety.

Since June the ciliary region about the iridectomy wound has been frequently examined by the ophthalmoscope and otherwise for further traces of the growth, but none has been found. The patient complains somewhat of photophobia in a bright light and of blurring if she tries to do near work. The remaining pigmented deposits would be more readily seen if she had a light iris for a background. As it is, probably her brown eyes prevented an earlier discovery of the disease. After the operation the tension became almost normal (it is still somewhat raised) and the scleral injection less. On Sept. 20, 1900, RV 1-10 LV 20-15. Ophthalmometer showed, left, ± 1.00 ax 90 degrees; right, ± 3.0 ax 105 degrees, with a -2 cyl. ax 15 degrees, VR-20-20 nearly. The field of vision for white is, however, sensibly contracted, probably due to the secondary glaucoma. Since it is well established that the early and complete removal of an iridic melanosarcoma is sometimes followed by cure Dr. Wood has ventured to keep his patient under observation, warning her that a more radical operation will be urgently needed if there is any return of the growth or any increase in the size of the other suspicious deposits in the iris. Dr. Wood thought that from the ap-

pearance of the remaining pigmented growths that there had been originally three simple melanomata, that the sarcoma had arisen from one of these and that there was a chance of the others remaining quiescent. The four months that have elapsed since the operation is too short a time to draw conclusions as to the probability of a return of the disease. He promised a supplementary report at a future date.

Discussion.—Dr. F. C. Hotz considers the elevated spots in the iris of a suspicious nature, although the length of time the case has been under observation is too short to make a positive statement. Early excision of the tumor invariably makes the prognosis a favorable one. He cited two cases of primary sarcoma of the iris which occurred in his own practice. One case has been under constant observation for two years, and the other for six years, neither one presenting any recurrence of the tumor. The eyesight has remained perfect. The tumors presented a reddish-gray appearance. The microscope revealed a slight tendency to melanosis. The first case, a woman, 43 years old, presented a small flesh-colored, nodular tumor in the lower temporal portion of the iris of the left eye. It was flattened against the cornea and reached up to the pupillary margin; the pupil was pear-shaped. Vision, 20-20. Tension not increased, and no sign of any irritation of the eye. The tumor had been developing gradually for two years. Upon incising the cornea the entire tumor jumped up. It was connected with the iris by a narrow, slender pedicle. The portion of the iris to which the tumor had been attached was also removed to prevent the possibility of a recurrence. Recovery was uneventful. The woman has reported from time to time for two years, and there has been no return. Microscopical examination showed the tumor to be a small, round-celled sarcoma, with a tendency to become spindle-shaped, but not melanotic.

The second case, a man 32 years old, had a small flesh-colored tumor upon the lower nasal portion of the left eye, reaching from the iris angle to the pupillary margin. Blood vessels were plainly seen on its surface; pupil was pear-shaped. Upon attempting to remove the tumor under cocaine anæsthesia a strong resistance was felt, creating the impression that extension into the ciliary processes had occurred. The iris was excised with the tumor and the next day a small hemorrhagic deposit showed on the ciliary processes. This was gradually absorbed, but after a while a grayish mass began to form. The final course of the case disproved the belief that this mass might be a recurrent tumor.

The patient was last seen in January, six years after the operation, and up to that time there was no recurrence, the eye being perfectly well, with full vision. Dr. Hotz feels positive that the long interval since the removal of the tumors in these two cases warrants the statement that a definite cure was brought about by the timely operation and removal of the tumor.

Dr. William H. Wilder said that it is commonly believed by pathologists that the most malignant form of sarcoma is the small, round-celled variety. Upon examining the specimen in Dr. Wood's case he found that in several places the cells exhibit a marked tendency to become spindle-shaped, so that it might be classified as a spindle-celled sarcoma. The tumor would therefore be of a less malignant character. The majority of sarcomata affecting the ciliary body and choroid examined by Dr. Wilder have been of the large spindle-celled variety.

Dr. Wood, in closing the discussion, agreed with Dr. Wilder as to the character of the cells in the specimens examined. This, of course, increases the chances of the patient's recovery. Personally, he feels that it is desirable to enucleate the eye where the ciliary body is involved, since cases are reported of the successful excision of the tumor. It would not be right to enucleate in the spindle-celled variety where the ciliary body is not involved, and patients certainly ought to be given every chance unless there be a decided involvement of the root of the iris or a recurrence of the tumor. Dr. Wood referred to the excellent and recent work on iris sarcoma in this country by Veasey and in Russia by Herschbaumer.

Dr. Hotz reported a case of *melanotic sarcoma of the orbit* of an unusually rapid growth of malignant type. The patient, 51 years old, who had never had any eye trouble and always enjoyed good sight, stated that last April he was taken with violent neuralgia of the right side of the face and his right eye became inflamed and protruding. After several weeks the pain and the inflammation subsided, but the exophthalmus persisted and the sight gradually grew dimmer and dimmer, though during the last two or three weeks he thought it had come better again and the eyeball less prominent. The examination, July 3, showed a high degree of exophthalmus and marked restriction of the movements of the globe; no downward rotation at all, the upward rotation very limited and the lateral movements but fair. Pupil dilated, media clear, papilla and surrounding retina œdematous and veins enlarged.

Tn; V 20-100. The retrotarsal fold of the lower lid was perceptibly crowded forward by a soft, elastic, apparently fluctuating, mass which filled the entire space between the ball and floor of the orbit.

July 5 the following operation was performed: Free division of the external canthus and a transverse incision through the lower fornix down to the tumor, which presented a perfectly smooth surface under the tarso-orbital fascia. When this membrane was incised a dark brown, soft mass like old blood-clots was extruded and many such clots were removed with a scoop until the examining finger found in the space behind the eye and between the recti muscles nothing more than the optic nerve. To examine the posterior aspect of the globe and the optic nerve the externus was detached, the eye forcibly rotated inward and the nerve drawn into view by means of a strabismus hook. The posterior aspect of the ball appeared perfectly normal, but a few millimeters from it there was a dark gray patch in the nerve sheath. This discolored portion, about 4 millimeters in length, was cut out, the rectus externus re-attached to the ball and a pressure bandage applied.

During the first week the ball seemed to recede into the orbit; but in the second week it was again forced forward; soon the lids could no longer be closed over it and the cornea became cloudy. The removal of the eye became an imperative necessity and was done July 20. And as the whole orbit filled again with a soft melanotic mass which had permeated even the muscles, especially the inferior and externus, all its contents were removed, including the periosteum. The operation was concluded by cauterizing the nerve stump and tissue shreds around the optic foramen and packing the cavity with iodoform gauze. By August 4 the orbital walls were covered with healthy-looking granules and the patient left the hospital for his home in Wisconsin. Three weeks later, August 29, he returned with a new growth under the upper lid, a solid tumor immovably attached to and evidently growing from the supraorbital margin. Probably some infected shreds of periosteum had been overlooked in spite of the great pains taken to remove everything. In the orbit itself, however, no trace of recurrent melanosis was noticed. While in the hospital a tumor had also been discovered in the region of the left kidney and when the patient came back this tumor had increased at a great rate, and a small melanotic tumor was then also found under the large toe of the left foot. No further operation was deemed advisable under these circumstances as the exitus letalis seemed a question of a short time.

A remarkable feature of this case is the sudden protrusion of the eye in April, for orbital tumors by their gradual growth push the ball forward slowly and gradually. Dr. Hotz thinks there had been a small tumor in the cellular tissue, too small to create any perceptible disturbance, and in April a hemorrhage occurred from this tumor, which caused the rapid protrusion of the eye and at the same time tearing up the orbital tissues favored the rapid spread of the melanotic growth.

The section of the enucleated eye preserved in formalin jelly and a number of microscopic slides were exhibited. These had been prepared by Dr. E. V. Brown, who gave the following explanation: The microscopic examination shows the main mass to be a small, round-celled melano-sarcoma of the soft tissues of the orbit. Here the pigmentation is most marked and the round cells are predominating. More recent involvement had taken place by extension to the adjacent sclera, optic nerve sheath and optic nerve proper, the proximal end of which is invaded to a greater extent than the end nearer the eyeball. New blood vessels are in process of formation in the orbital and scleral masses, but very little connective tissue is present.

Discussion.—Dr. J. E. Colburn cited a case of a large tumor of the orbit which had been diagnosed and treated as an abscess. The case was referred to him and an examination of the discharge showed the tumor to be a melanotic sarcoma. The orbital cavity was scooped out as far back as possible. The frontal sinuses as well as the inner layer of the frontal bone were found to be involved. The patient died about a month afterward. Another case, in a young boy, presented a bulging tumor in the conjunctiva above the eye. Examination of the semi-fluid discharge revealed a melanotic sarcoma. Operation was not consented to by the parents. Four months afterward the tumor was of enormous size, involving the entire side of the head. There was some sloughing and a very offensive odor. Dr. Colburn felt that an operation might have lessened the suffering of the patient considerably, but in all probability it would have hastened death, as in the previous case.

Dr. W. H. Wilder. Some authorities speak of a cure after a period of three years has elapsed during which there has been no recurrence. This time limit is of course a purely arbitrary one. The question which presents itself is that if recurrence takes place after this time, we are to speak of it as a metastatic growth, or as an independent process. Some years ago in the laboratory of Professor Kundrath in

Vienna, Dr. Wilder saw a specimen of melanotic sarcoma of the liver in a subject who thirty-two years before had had one eye enucleated for sarcoma of the choroid. Post-mortem examination showed that the different organs were involved by the tumor. If this was metastasis, the period surely was a long one. Dr. Wilder said he had never heard of any longer period than that.

Dr. William E. Gamble referred to a case which he exhibited before the society in 1897. It was supposed to be a melanotic sarcoma of the ciliary body. He subsequently removed the eye, and up to the present there has been no recurrence of the growth in the neighboring tissues or elsewhere.

Dr. E. A. Lawbaugh saw a case in London of sarcoma of the liver. The patient died. Mr. Lawford remembered that he had removed the eye of that patient seventeen years ago. The eye was found in the museum, and on examination the tumor proved to be a melanotic sarcoma of the eye.

Dr. William A. Fisher dwelt on the importance of an early diagnosis in these cases, although in Dr. Hotz' case an earlier diagnosis would not have done any good. He cited the case of a boy, ten years old, who had been having some trouble with his eye for two weeks. After giving him potassium iodide for three weeks, the eye was enucleated and an encapsulated alveolar sarcoma was found at the bottom of the orbit.

Use of Protargol in Acute Diseases of the Lachrymal Sac, an Aseptic Lachrymal Syringe and a Medicine Dropper.—Dr. J. E. Colburn reported several cases of acute inflammation of the lachrymal sac following an attack of influenza, which he treated with protargol. In one case there was a large swelling of the right and a smaller one of the left lachrymal sac, both of about three days' standing. He dilated the puncture with a cone-shaped dilator, and then introduced a dental syringe into the sac. After a few minims of some thickened secretion had been withdrawn, he injected a sufficient amount of 5 percent solution of protargol to fill the sac. An ice compress was then applied, and on the second day the inflammation had entirely subsided. On the third day the lachrymal sac could be washed out through a canula into the nose.

The second case had a small bean-like tumor in the region of the sac. It was treated in the same way as the previous case, the same results accruing.

The third case was that of a man who twice before had had lachrymal abscess, and once had to have the abscess lanced on the outside. The punctum was dilated, the sac washed out and then filled with a 5 percent protargol solution. Four days afterward the inflammation had entirely subsided, and the solution could be forced through the duct without any inconvenience.

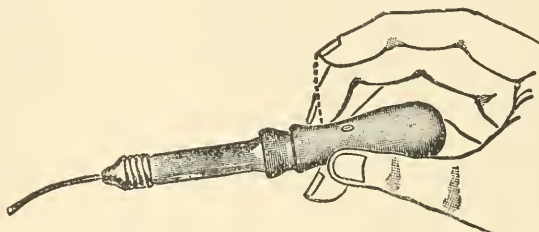


Fig. 1.

Dr. Colburn offered for examination a small syringe devised by Dr. J. Austin Dunn of Chicago. It consists of a metal tube connected with a glass cylinder, a check valve and a rubber bulb, which has a perforation on the side. (Fig. 1.) This perforation is of great importance. The hollow needle can be introduced without holding the bulb compressed, after introducing it into the sac the bulb is compressed, the finger held over the little opening, and the fluid, if not too thick, will be drawn into the chamber above. When using it as a syringe the tube can be filled with the solution without being obliged to pay any attention to the opening or solution, the needle is introduced, the fluid discharged

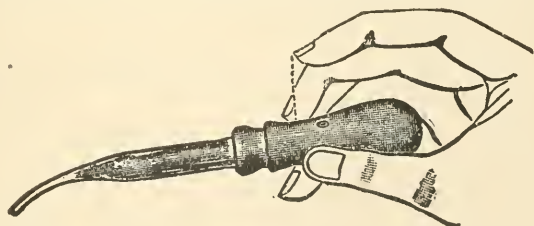


Fig. 2.

into the sac and instrument withdrawn without the inconveniences which attend the use of the piston syringes. The vent hole in the bulb allows free access and egress of air, leaving the instrument in perfect control of the operator. It is easily cleaned and does not get out of order. Dr. Dunn has applied the same principle to a medicine dropper which is convenient, clean and easily handled. (Fig. 2.) The quan-

tity of fluid used can be regulated very easily. It is a perfect medicine dropper to use with solutions of atropine, eserine, etc., as it keeps them clean, because the solutions need not be drawn up into the bulb, and accurate dosage is possible. The valve in the glass cylinder prevents dripping from the tube held in any position.

Discussion.—Dr. A. E. Bulson, Jr., of Fort Wayne, Ind., has had some experience with protargol, but has found weak solutions to be practically inert. Believing stronger solutions to be more valuable, he increased the strength until he reached 50 per cent. He then got results which he could not obtain with the weaker solution. He agrees with Dr. Colburn that protargol in lachrymal abscesses and in the treatment of all forms of dacryo-cystitis yields very gratifying results. He has his solutions prepared by the druggist, who adds a little glycerin to it. This strength solution will not affect the cornea, even if there are abrasions. Nitrate of silver does not act in the same way.

Dr. Hotz' experience with protargol coincides with that of Dr. Bulson. He had no results with protargol until he adopted a 20 percent solution as his standard. In that strength it has proven to be a most valuable remedy in the treatment of pyogenic affections of the eye, as well as of inflammation of the lachrymal sac. The stronger solution does not cause any more irritation and pain than the weaker solution. He has found this to be one of the great advantages of protargol over nitrate of silver. In a case of blenorrhoeal conjunctivitis the 5 percent solution was absolutely worthless; the 20 percent solution was remarkably effectual. Dr. Hotz has discarded the weaker solutions entirely, as his experience with them has been very unsatisfactory.

Dr. C. P. Pinckard inquired as to whether any of the members have had any experience with protargol staining the tissues. He is afraid to use it as he finds it to stain very rapidly, much more so than nitrate of silver.

Dr. William H. Wilder has used protargol extensively and has found nothing to be so beneficial in certain conjunctive cases, especially in trachoma when the follicles are large and succulent. He uses a 25 percent solution in equal parts of glycerin and water and months of treatment have never resulted in any staining.

Dr. C. D. Wescott has seen at least two cases of argyrosis following the use of protargol in 10 percent solution. One of them developed much more rapidly than one would expect, even if a silver nitrate solu-

tion had been used. The susceptibility of the patient to protargol is certainly an important factor. Some patients complain bitterly of the pain and burning following the use of the same solutions used on others. He feels positive that there is a vast difference in the solutions of protargol as put up by different druggists; as to its effect in some cases, and as to the complaint that the individual patient will make in regard to the effect of different solutions during the treatment of the same case. Organic salts of silver are very liable to decompose, heat and light affecting solutions very rapidly. A great deal of care is necessary to have uniform solutions and uniform effects. In one of his cases staining of the conjunctiva occurred very rapidly from the use of a 10 percent solution every day for two weeks.

Dr. W. F. Coleman has also noticed the discomfort caused some patients by the protargol. He uses a 25 percent solution, as a rule, although in some cases he has been obliged to reduce the strength to 5 percent in order to obviate the pain and burning. He has never seen any staining follow the use of protargol.

Dr. J. E. Colburn said that he uses a 10 to 20 percent solution, but always uses a fresh solution, because if they stand about for any length of time they become inert. He injected a 5 percent solution into the lachrymal sac for the reason that it would be retained for some time and there would be considerable pain following its use if a stronger solution were used. The pain in the one case he cited may have been due to the pain of the tumor, but it seemed to him that the degree of pain was greatly exaggerated by the use of the protargol. He has noticed but little staining resulting from its use, and that little has disappeared within two or three hours. He has also noticed that the same solution will produce different effects in the same eye on different days. On one day there may be considerable irritation, and on the next none at all. He also washes the conjunctival sac with sodium borate before using the protargol, and after the patient has been in the office for fifteen minutes he again washes the conjunctival sac, in order to clean it of little shreds of mucus, which are so aggravating.

DENVER OPHTHALMOLOGICAL SOCIETY.

MEETING OCTOBER 16, 1900.

DR. EDWARD JACKSON, in the chair.

The following cases were presented by Dr. Jackson for examination:

Swelling and Opacity of Both Optic Nerve Heads.—The patient was a young man, aged 20 years, of slender physique, but good general health. He complained of a little dull headache, worse in the right temple, and thirteen months before had been knocked down by running his head against a timber in a mine. But there was no other evidence of general or cerebral disease, and the headache had been helped by correction of a low hyperopia. The swelling of the optic disks amounted to about 2D. The vessels were quite tortuous, but the normal relative size of arteries and veins was preserved and the arteries were more tortuous than the veins. There were no hemorrhages and no exudate in other parts of the retina. The appearances were thought to be anomalous rather than pathological, but only prolonged observation could settle this point.

Optic Atrophy Following Dysentery.—The patient, then aged 35 years, had been attacked with dysentery while at Honolulu with the United States forces, in September, 1898. There was some sharp pain through the head, but not any marked signs of meningitis. There was no history of malaria or the use of large doses of quinine, or of other cause for a toxic amblyopia. A few days after the attack of dysentery the sight began to fail and had gradually grown worse, until the last few months it seemed almost stationary. In the right eye, vision was reduced 10-200, the field greatly contracted and color vision lost. The left eye had no light perception. Both eyes showed paper white disks devoid of small vessels, with sharp outlines and doubtful disturbance of the retinal pigment layer. The retinal vessels were slightly narrowed.

Paresis of Superior Oblique Relieved by Operation.—The patient was a woman aged 41. Her trouble was of four years' standing and seemed to have followed a heavy fall on the back of the head, and a severe attack of epidemic influenza. There was marked limitation of the downward movements of the left eye, especially the movements

down and in. At the extreme upper margin of the field there was single vision, but hyperphoria. At the center of the field the deviation was 15 or 20 centrad. Operation on the left superior rectus had given comfortable binocular vision over a large central portion of the field, with vertical diplopia at the extreme upper and lower margins of the field. She was relieved of pain in the eyes, head and neck and of diplopia and discomfort with any ordinary use of the eyes.

Simple Extraction of Unripe Cataract.—The patient's central vision had been reduced to counting fingers at one foot, although there was still a good fundus reflex seen through the periphery of the dilated pupil. Simple extraction of the nucleus had been done one month before, but there was no marked improvement of vision until a needle operation five days ago, which gave already vision of 4-12.

Choked Disk.—Dr. Melville Black reported a case of choked disk occurring in a woman aged 27 years. The patient had presented well-marked secondary syphilitic lesions eight months before. She had been under constant treatment since that time, and all secondary manifestations controlled. Four weeks ago she had noticed blurring of vision of the left eye. An ophthalmoscopic examination showed a typical choked disk of the left eye with swelling of 3D. The vision of the eye was 5-12. The vision and nerve of right eye were normal. There had been no improvement in the case under active treatment by baths, mercurial inunctions, and the administration of potas. iodid in ascending doses. There were no symptoms of disease of the brain or its membrane. The case was probably specific, but he thought it unusual for a choked disk to be seen so soon after the onset of secondary symptoms.

Syphilitic Ulcer of the Upper Lid.—Dr. W. C. Bane reported a case of syphilitic ulcer of the lid which had healed readily under anti-syphilitic treatment and the local use of silver nitrate.

Dionin in the Pain of Iritis.—Dr. D. H. Coover reported a case of iritis with severe pain in a patient over fifty years of age. The pupil was bound down by adhesions and the use of atropine increased the intraocular tension. A solution of eserine was therefore used in place of the atropine. A 10 percent solution of dionin instilled into the eye every four hours gave entire relief from pain.

Atropine in High Altitudes.—Dr. George F. Libbey reported five cases of atropinism occurring in a series of twelve consecutive cases in which atropine was used as a mydriatic. In no case was the drug used

in greater strength than four grains to the ounce. This experience was so unusual as to lead him to believe that perhaps the action of atropine was more intense in high altitudes.

Dr. D. H. Coover said he had seen but one case of atropinism during many years practice in Denver, and he had frequently used atropine as a mydriatic.

Dr. W. C. Bane said he had also frequently prescribed atropine as a mydriatic, though he used homatropine and cocaine discs for his refraction cases. He had seen three cases of atropinism during his practice in Denver, and these cases were due to too frequent instillation of the solution.

Dr. Carroll E. Edson said he had frequently given atropine internally during his practice in Denver and had never noticed any excessive action of the drug in this altitude. He believed that tablets varied greatly in strength, and solutions prepared from tablets would not be of uniform strength.

Use of Homatropine as a Cycloplegiac.—Dr. Edward Jackson among 1,000 cases in which homatropine was used had followed it by one of the stronger mydriatics in 22 cases. In but six eyes out of the 44 did the second mydriatic show a higher hyperopia or lower myopia. The greatest difference was 0.62D in one meridian of one eye. The patient showing this difference was 40 years of age. The youngest patient showing imperfect cycloplegia was 19 years old. The average age of patients in whom homatropine revealed the true static refraction was 18 years. The average age of those in whom higher hyperopia or lower myopia was found with atropine was 21.1 years. Contrary to what was often stated, the more rapid cycloplegiac attack with homatropine proved more effective in children in whom elimination is more rapid. But spasm of accommodation yields more slowly in older persons, requiring a more prolonged cycloplegiac influence.

To avoid exciting excessive lacrimation the homatropine solution should be entirely non-irritant. Such a solution it was impossible to get with some samples of the drug. The pericorneal redness that always accompanies the absorption of the drug through the cornea need not be attended with any discomfort or increased lacrimation. Noticeable constitutional symptoms from homatropine very rarely occur. Two cases were reported. The bitter taste in the mouth is usually noticed, but not by all patients.

NEWS ITEMS.

*Personals and items of interest should be sent to
Dr. Frank Allport, 92 State St., Chicago.*

Dr. Edward H. Bernstein of Baltimore has returned from Europe.

Dr. W. H. Wilder of Chicago has returned from his European trip.

Stephen likes largin but regards it in a general way as inferior to protargol.

Dr. C. Addario of Gatania, Italy, has been appointed Privat-Docent of Ophthalmology.

The wife of Dr. George J. Bull of Paris has a daughter (Agnes Montagu), born on Sept. 25.

Dr. Arthur Fiedmann of Colorado Springs has just returned from a two months' visit to Berlin and Paris.

Dr. G. Oram Ring has removed his office to the southwest corner Nineteenth and Chestnut streets, Philadelphia.

Dr. A. Elsching and Dr. L. Konigstein have been appointed Extraordinary Professors of Ophthalmology in Vienna.

Dr. Jesse B. Tettersington has been elected Professor of Diseases of the Eye and Ear in the University of Dallas, Tex.

Lafayette College has conferred upon Dr. Charles A. Oliver of Philadelphia the honorary degree of Master of Arts.

Dr. H. B. Lemere, late interne at the New York Eye and Ear Infirmary, has located as an oculist and aurist in Omaha.

Dr. T. A. Woodruff has received the appointment of Professor of Ophthalmology in the Chicago Post-Graduate Medical School.

The Chicago Eye, Ear, Nose and Throat College has increased its capital stock from \$10,000 to \$25,000, and its directors from three to five.

Suter defends the Helmholtz theory of accommodation as opposed to that of Tscherning, and reports experiments made by him on the eye which seem to favor his view.

Ray highly recommends subconjunctival injections in infected diseases of the cornea. He believes that in post-operative infection and panophthalmitis it is our best remedy.

Dr. Haensell, formerly pathologist at the Quinze-Vingt Hospital in Paris, and established in practice for the last few years at Lindau, Russia, is now in Paris for a few weeks.

Dr. William Cheatham has been made Ophthalmologist, and Dr. L. Baltzer has been made Assistant Ophthalmologist to the Masonic Widows' and Orphans' Home in Louisville, Ky.

On September 4th the Hospital Staff of St. Peter's Hospital, Albany, New York, was reorganized. Dr. G. H. Munson and Dr. T. F. C. Van Allen were appointed Ophthalmic Surgeons.

Meyer now uses electrolysis exclusively in trachoma. Three or four punctures are made in each hypertrophy, and from twenty to thirty punctures may be made at a sitting. A current of one and a half to two milliamperes is sufficient.

The eyesight of Queen Victoria is again occasioning much interest in England. Professor Pagenstecher was lately summoned to Balmoral to see the Queen, but it is understood, decided not to perform an operation at the present time.

The incorporation of the Medical Defense Association of Minnesota, whose object is to protect the interests of the medical practitioners of the State, is announced. Among the directors we find the name of Dr. Thomas McDavitt of St. Paul.

At the St. Joseph County (Indiana) Medical Society, held at South Bend, September 25th, Dr. George W. Van Beuschoten read a paper on "The Relation of the General Health to the Eye and Its Diseases."

The Ophthalmological and Otological Society of Washington, Dr. S. O. Richey, President, held its first fall meeting October 9, at the residence of Dr. W. K. Butler, who read the paper of the evening, entitled "The Necessity for Wearing Glasses."

The Graefe prize, for the best works that appear in von Graefe's Archiv f. Ophthalmologie during the years 1896 to 1899, has been divided between Dr. Hess, for his work on "Accommodation," and Bernheimer for his studies on the "Nucleus of the Motor Oculi."

Dr. G. Nagel, formerly assistant in the clinic of Prof. Uthoff in Breslau, and later Chief of Clinic to Prof. Pflüger in Berne, has located in Denver. Before taking up his special work in Ophthalmology he was engaged for some years in general practice in Australia.

The officers of the Denver Ophthalmological Society chosen for the current year are: Dr. E. W. Stevens, Secretary; Dr. W. C. Bane, Treasurer; and Dr. D. H. Coover, Chairman of the Executive Committee. The society has no President, a Chairman being chosen for each meeting.

The West of England Eye Infirmary at Exeter held its annual meeting October 26. The past year 2,845 patients have been treated. The total receipts were £1,392, of which £86 remains. The new buildings are nearly completed, at a cost of £16,000, of which £8,000 has already been contributed.

We have received the following from Prof. von Michel: "Dear Colleague: "You state in the OPTHALMIC RECORD No. 10 that Prof. Hess succeeds Prof. von Michel of Würzburg, resigned. In April, 1900, I was appointed Professor of Ophthalmology at the University of Berlin and the Kaiser Wilhelm Academy, as well as Director of the Royal Ophthalmic Klinik in Berlin, and accepted the appointment.

Sincerely,

PROF. DR. VON MICHEL.

The Pan-American Medical Congress.—Dr. Tomas V. Coronado announces that the third Pan-American Medical Congress will be held in Havana, Cuba, on Wednesday, Thursday, Friday and Saturday, December 26, 27, 28 and 29, 1900. The official languages of the congress will be French, Spanish, Portugese and English, though naturally the greater number of the papers and addresses will be in Spanish. Several of the steamship lines running to Havana announce a rate of one fare for the round trip, and the Southern Passenger Association has established a rate of one fare plus \$2 to Havana and return.

In the Archives of Ophthalmology, Gifford says that what is called simple evisceration is really evisceration plus keratotomy. For two years past he has been doing an operation which is a strictly simple evisceration; instead of cutting out the cornea, he has made a meridional incision entirely within the sclera, or extending partly or entirely across the cornea, and has completed the operation through the opening thus made without removing any of the cornea. The results have convinced him that this should be the operation of election. The simple evisceration he claims tends to avoid the bursting open of the wound, first, by permitting the incision, which can be better coapted than where keratotomy is done; and second, and most important, it leaves so much more space within the globe that there is more time for the scar to organize before the contraction of the sclera attempts to stretch it over the artificial vitreous.

The Right of a Hospital to Discriminate in the Reception of Patients.—It is stated in *The Sun* that a medical controversy, growing out of the custom of club practice, is about to be carried into the courts of Massachusetts at Springfield. The Hampden County Medical Association has expressed its approval of this practice, insisting that no special arrangements for charging less than the ordinary fee should be made with medical clubs, lodges and other benevolent organizations, but the societies have found no difficulty in securing the services of physicians who agreed to treat their members for a stipulated sum per annum. A patient who was sent by one of these contract physicians to the Mercy Hospital in Springfield was refused admission to that institution unless the doctor in attendance withdrew from the case, which he finally consented to do for the sake of the patient, who required treatment which

could be afforded only at a hospital. A suit will now be brought to ascertain whether the hospital staff could lawfully take this action under its charter, which provides that all patients shall be treated there who are brought to the institution by reputable physicians.

OBITUARY.

HENRY DRURY NOYES, M. D.

NEW YORK.

Dr. Henry D. Noyes died at his summer home in Mt. Washington, Mass., on Nov. 12, at the age of sixty-eight years. The cause of his death was pneumonia. He was born in New York city and was a graduate of the New York University, of the class of 1851. In 1855 he graduated in medicine from the College of Physicians and Surgeons. He became one of the internes at the New York Hospital immediately after graduation, where he served his regular term. He then studied for a protracted time in Europe and became especially interested in the treatment of diseases of the eye and ear. Upon his return to New York city he entered into the practice of this specialty, and while he never attained especial distinction in the treatment of diseases of the ear, he became a recognized international authority as an ophthalmologist, and easily takes rank among the foremost practitioners of his time. His book on diseases of the eye is an important contribution to ophthalmological literature, and his many contributions to medical periodicals have been of a most valuable, scientific and practical character. He has been for many years Professor of Ophthalmology and Otology in the Bellevue Hospital Medical College, and was also an executive surgeon to the New York Eye and Ear Infirmary. Dr. Noyes leaves a widow and three children to mourn his loss.

Dr. Noyes was an inspiration to every one with whom he came in contact. His broad and cheery personality in the office, hospital and operating room was a blessing to his patients and an object lesson to other physicians. Dr. Noyes' later career contradicts the assertion that after a physician reaches the age of sixty years he cannot keep

abreast with the progress of the times. No man searched for new truths more eagerly than he. The writer well remembers a year and a half ago, seeing him go to the New York Eye and Ear Infirmary for the first time after a European trip. He was fairly bristling with new ideas, new instruments and new methods, which he had collected from European capitals, and eagerly demonstrated to his colleagues in New York. As an operator he was exceedingly skillful and bold. Some of his operations fairly took one's breath away with the boldness of their conception and the dexterity of their execution; and yet, with all, he was a cautious and conservative operator and adviser, and held the respect and confidence of his colleagues and the laity with unabated trustfulness to the day of his death.

He was a man of great culture, not only in matters concerning his specialty, but also in the broad field of general medicine and surgery, in allied topics and in general literature. He hardly had a superior as an interesting, intelligent, comprehensive and forceful speaker in New York city, and it was always a pleasure to listen to his beautiful diction and well rounded sentences. We have few men in this country, or in any other country for that matter, the equal of Dr. Henry Drury Noyes, or "Uncle Harry," as he was sometimes called by his old students and intimate friends. It is sad to see such men pass away, and those who frequent New York from time to time to receive inspiration from some of the leading lights of ophthalmology, will miss the cheerful face and warm hand shake of the subject of this sketch. His memory will remain, however, to serve as an inspiration to those who desire to honestly work and achieve distinction in the broad field of ophthalmology.

F. A.

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